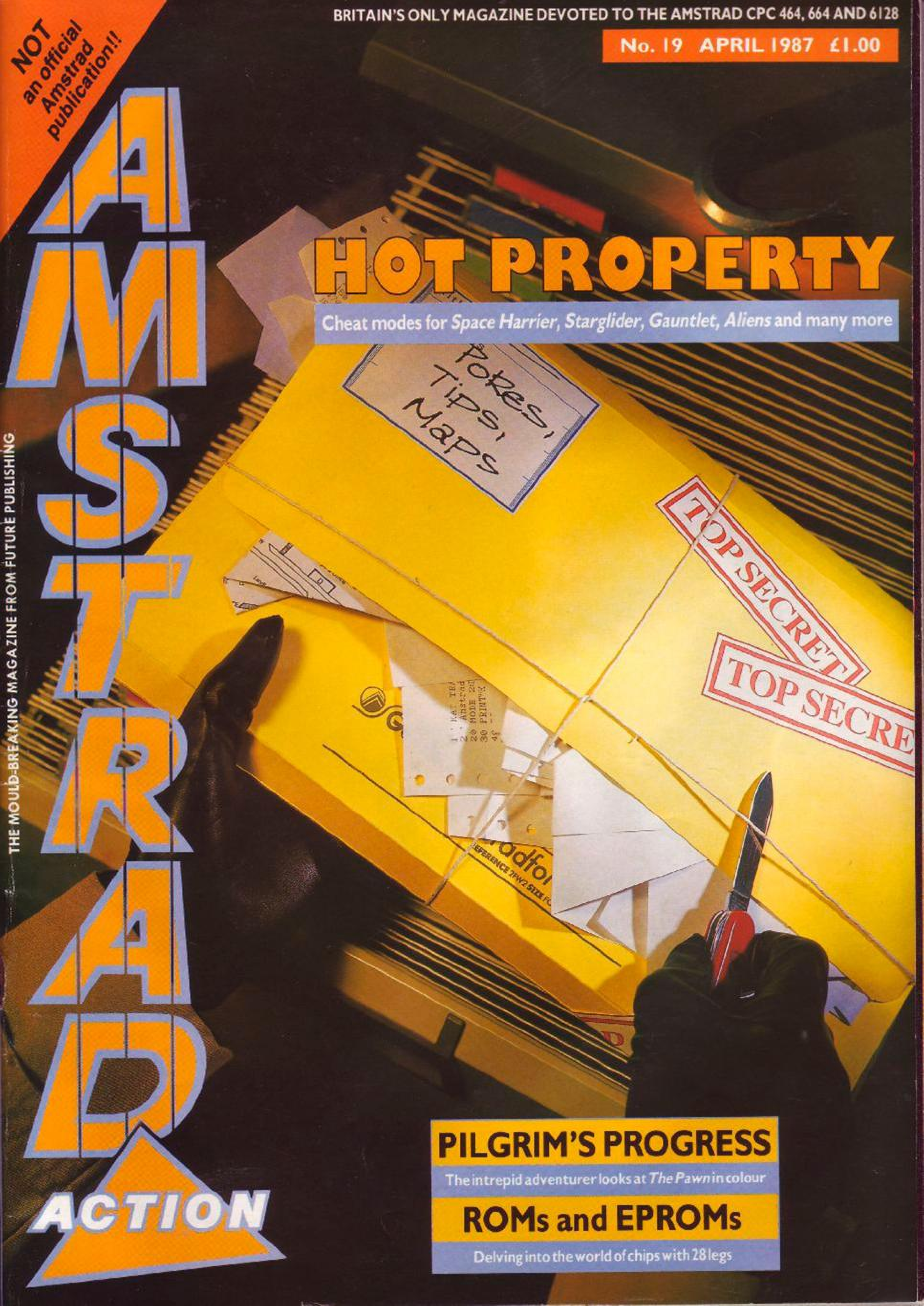
BRITAIN'S ONLY MAGAZINE DEVOTED TO THE AMSTRAD CPC 464, 664 AND 6128

No. 19 APRIL 1987 £1.00

NOT an official Amstrad publication!!

AMSTRAD ACTION

THE MOULD-BREAKING MAGAZINE FROM FUTURE PUBLISHING



HOT PROPERTY

Cheat modes for *Space Harrier, Starglider, Gauntlet, Aliens* and many more

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The intrepid adventurer looks at *The Pawn* in colour

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Screen shots taken from Arcade version.



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THE LINE-UP

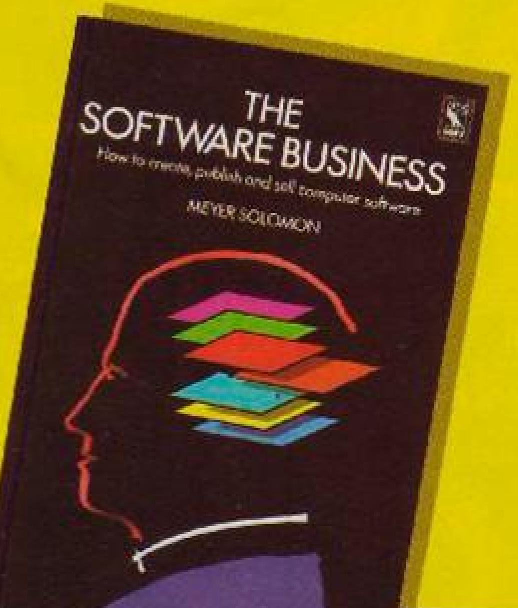
AMSTRAD ACTION APRIL 1987

FRONT END

NEWS ● LETTERS

SERIOUS SIDE

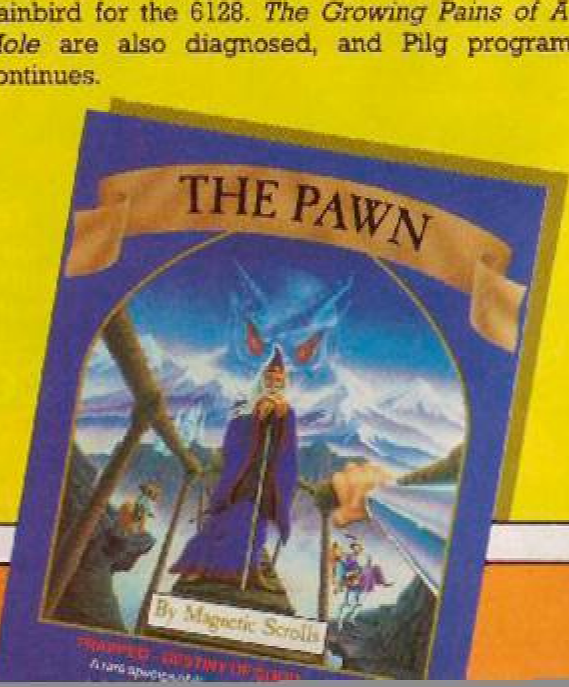
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ACTION & ADVENTURE

GAMES ● MAPS ● PILGRIM





INTERACTION

CREATED BY YOU AND FOR YOU



WRAPPING UP

THINGS TO BUY ● BYE

Lines from AA are engaged

It's been one of our more trying months at *AA*, mainly due to the industrial dispute at British Telecom. It was tough enough before the strike when a schoolma'am voice told you "Lines from Shepton Mallet are engaged" every so often. But all we got for a week or two was a constant engaged tone before we even finished dialling. However, by the miracles of the postal system and persistence of digits on keypads we bring you this issue.

Second prize in the "Acts of God" awards goes to the gas-board employee who, while digging in Somerton's main street, managed to go through an electricity cable and put our power out for several hours. This doesn't match the reason for a previous power cut, though, which I was informed was due to "a barn exploding".

Our new look (nothing to do with our Old Barn exploding, of course) seems to agree with most of you. New features like Helpline have still to take off properly but it's already showing a very encouraging response, so keep them coming.

Cheat Mode is currently undergoing a boom period, reflected by its prominence on the cover. You'll find no less than six pages absolutely bursting with our own special brand of hot property. If you've been wondering who does our superb cover shots then wonder no longer – it's Tony Spinks of Langport. His sterling effort has gone unsung for too long, so you'll now find his address and phone number on these pages.

We've looked at some extraordinary games as well, both on the arcade and adventure sides. Action Test devotes four colour spreads to four games that you just can't miss. And the Pilgrim looks at a potential home-grown challenger to the dominance of that transatlantic giant, Infocom.

Happy reading. And remember – no one can pull the plug on *AA* (unless, of course, she offers to buy the next round).

Bob

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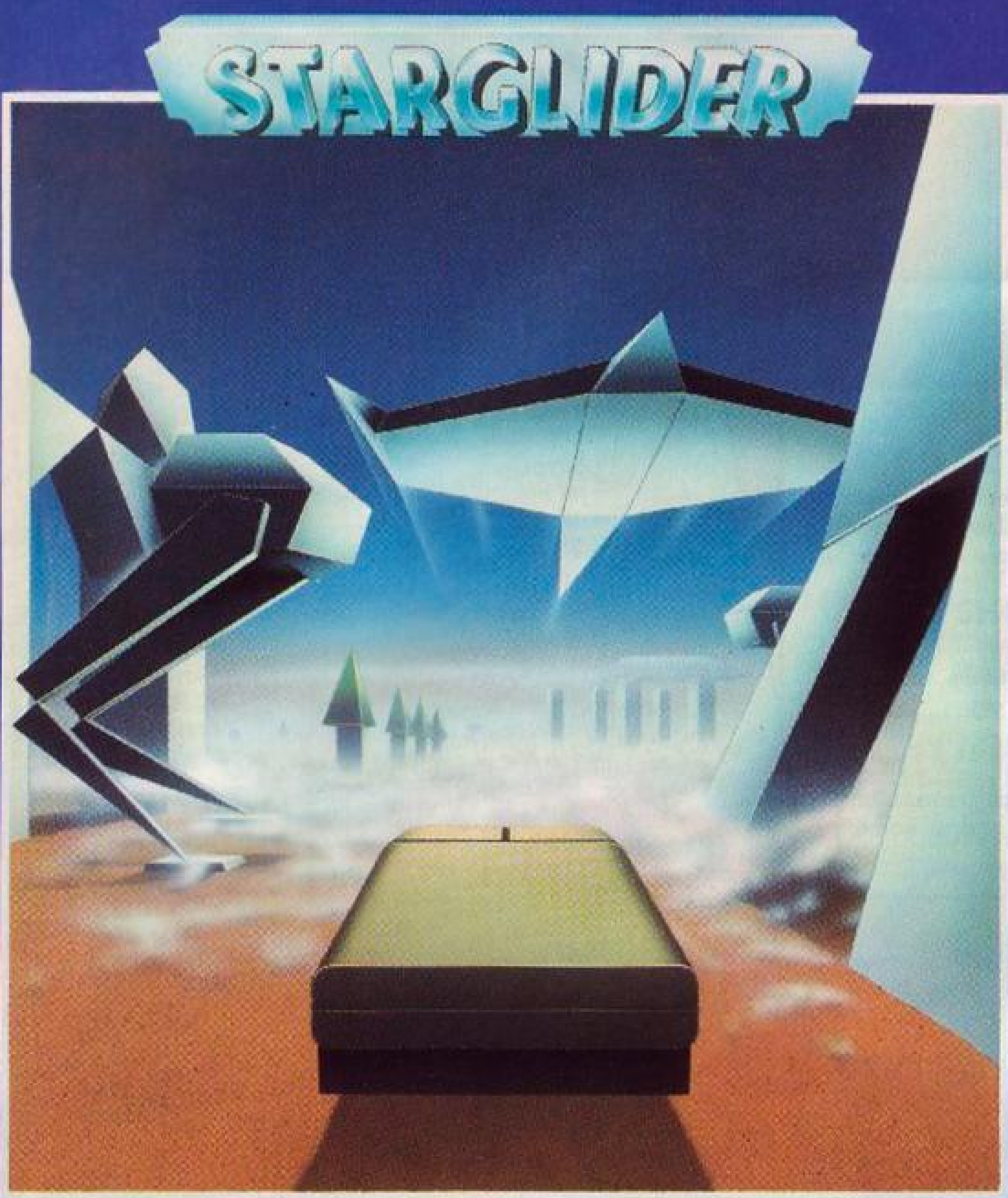
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'The graphics really are superb: fast-moving, colourful, excellent animation. The gameplay is out o this world'

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'Starglider does the CPC proud'

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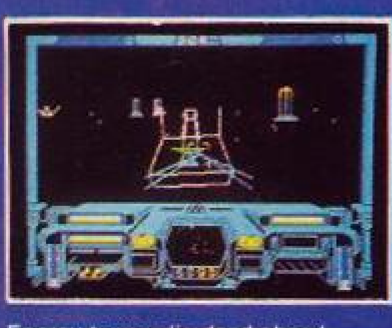
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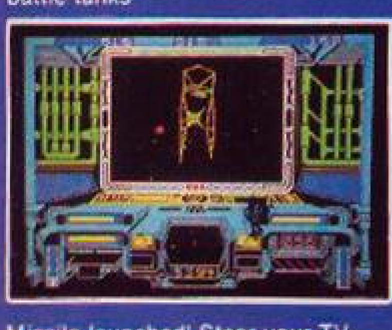
Energy towers lie dead ahead defended by heavily armed Egron battle tanks



A Stomper and Walker close in. Laser fire is futile against these metal monsters



The Walker attacks. Bank your craft to evade the lasers and prepare to fire



Missile launched! Steer your TV-guided missile on target to annihilate the invader



The Starglider swoops in to attack. Several direct hits are needed to destroy it



A special mission. A devastating super missile has been located in the ruins of Novenia

Screenshots taken from Spectrum 48/128 version

Amstrad CPC cassette

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REACTION



A bursting bag of Reaction post again this month, plus some we found in our Micronet or Telecom Gold mailboxes. Topics cover the whole gamut from games to getting ripped off, e-mail to females.

Unfortunately we cannot guarantee personal replies. This is because of the need to spend the bulk of our time producing a magazine. Shame, isn't it?

Keep 'em coming, but keep 'em short! The address: Reaction, *Amstrad Action*, Somerton, Somerset, TA11 7PY. Or Micronet 045 874 011. Or Telecom Gold 83: JNL272. Please don't mix items for other departments (such as subscriptions or mail-order) in the same message.

Monitors – two moving tales

While moving house recently, my 464's monitor was destroyed. As I bought it two years ago, the guarantee has expired. Since this accident I've had to borrow a modulator from a friend and try to sneak onto the family television whenever possible. However, as you can imagine, this has become very tedious and hectic.

I have telephoned Amstrad twice about buying just a monitor on its own, but the answer is: "No way – must buy complete with computer." But to sell my computer I would lose between £80 and £100 because of its age.

Do you know of any company or firm selling Amstrad-compatible monitors at reasonable prices? Surely Amstrad could market them quite cheaply, selling some to people who wish to update to a colour monitor or to those who want both the sharpness of a green screen for word-processors and a colour screen for games.

Carl Adkins
Oldbury, West Midlands

Here's a switch. We've printed dozens of letters from people wanting to buy computers without monitors, intending to use the Amstrad with a modulator and telly. Pair up with one of them, Carl!

Or you could possibly buy or build a 5-volt DC power supply for your computer and then plug it straight into one of the many monitors on the market (from £75 mono or £150 colour) without a modulator.

■ I am shortly leaving for Canada and wonder about the feasibility of taking my CPC 6128 with me. Obviously I would need a step-up transformer to cope with the change in voltage. The most important point: how well is the Amstrad supported in Canada?

B— *(signature illegible)*
Newcastle-upon-Tyne

"Hydro", as Canadians call electricity, comes to household sockets at 115 volts. A step-up transformer should be easily available in electronics shops there. But heavy appliances such as cookers are wired for 230 volts, so you could hot-wire it and skip the transformer: compute in a Canadian kitchen.

Or you could make Carl Adkins happy above by bequeathing him your British monitor. In Canada, instead of stepping up and then down again, buy or build a power supply to convert AC 115v to DC 5v for the computer and 12v for the disk drive. You'd find RGB or mono monitors, like most things, cost less there than here.

Don't forget that Niagara Falls and friends generate at 60Hz (Hertz – cycles per second) as opposed to 50Hz in Europe. Television frames scan at the same rate. Change link 4 on the Amstrad's circuit board and the computer can cope – see Amstrad's firmware guide. However, certain programs might still be confused if they depend on frame flyback.

The answer to your important question is no, unfortunately: Arnold would have few fellows in the true north strong and free. But you could have AA every month by airmail!

More value, less bucks

I have noticed that most computer magazines give good marks to budget titles, specially the ones produced by Mastertronics and Firebird. Although the games are good value at £2 compared with other titles at £10 they are still not very good. For example *Kane*: you and other magazines gave this a great response but the game is only partially worthwhile due to its graphics. The gameplay is rubbish, because it never differs. The birds always fly in the same positions as the game before, and the bushes in levels 2 and 4 are also non-moving in all three difficulty levels. It took me only five tries to finish all three levels and get a very high score.

Ocean and US Gold have both started the new year with an enormous array of advertising for a batch of video-arcade conversions that are mostly worse than *Space Invaders*. If US Gold is really importing these all-American games, then I feel sorry for what the Americans must be going through.

S Massoudinia
Cardiff

£10 is an awful lot to spend on a game if it's junk. Budget games cost a fifth the price of "normal" software, and we have to take this into account. The final AA rating is the only figure affected by price; the first four factors are independent. For "normal" games the final rating usually falls between the Grab Factor and Staying Power figures, but for budget games it tends to be a bit higher.



Computess

There are hardly any letters from females. I can't see why, because we are just as intelligent as the opposite sex – if not more so. So come on, all you female whizkids!

And by the way, does anyone know the cheat mode to *Bounder*?

Sarah Standring
Bolton, Lancs

Bob's complaint exactly! (Though we never know about people like PB and K who sign their names with only initials.)

There's an easy poke to Bounder: *it's already hidden on the tape. Just type* `Poke 800, 201`. *Then without resetting the machine, load the tape in the normal way with control-enter, and the screen will tell you cheat mode is operative.*

Not nice, Martyn!

I'm just contacting you to say how much I liked the type-in *Landscapes* by Brian James (March '85). Oops – silly me, I mean Martyn Harrison (Feb '87).

Anyone can make a mistake, I suppose, especially when the program was featured in an article in *Your Computer* May 1985 as 'Fourier Synthesis' by Brian James along with a review of his *Landscape Creator* – for £5 at the time.

I wouldn't be large, green and angry apart from the fact that MH didn't even bother to change variable names etc.

V. Angry
Bridgemary (via Prestel)

We do apologize to Brian James for accidentally infringing his copyright. Unfortunately Martyn Harrison's small type-in payment has already gone out to him. We await his apology. The least he could do is send the cheque to Brian James.

■ Martyn Harrison didn't do much more than use the CLR key to put his name in line 2.

By the way, I think the *Landscape Utility* is well worth its price. For me it was the decisive reason to buy an Amstrad CPC! This program is incredible! I do not believe it would be so simple to modify the short Fourier-synthesis program, just adding some clouds and trees, to make the *Landscape Utility*.

Guenter Grimm
Mainz, W Germany

More minus monitor

I've seen several letter in Reaction wanting to buy just the 464 or 6128 keyboard, minus monitor. I've never seen it for sale like that in a shop, but at least two mail-order catalogues will oblige: Kays and Grattans. Grattans' 464 is £220 and the 6128 is £320, both complete with modulator.

K Coates
Portslade, E Sussex

■ Try Currys. They were prepared to sell me one. You save hardly anything with a green monitor, but worth it with a colour one.

M I Trinder
Dumfries

Lightening darkness

Your second opinion of *Nosferatu* (AA 16) complains about a certain dark room which is so dark that you can't see a thing. If you care to drop a candelabra (as stated in the other Amstrad mag) it soon brightens up.

I wondered if it might be possible to bring out a special edition of AA, a grand compilation of all the Cheat Modes and pokes published so far. I am sure I am not the only one who would appreciate this.

Paul Mayze
Allestree, Derby

CPM isn't playful

Are there any games that work with CPM, which I got with my 6128 computer?

Andrew Martin
Co. Monaghan, Eire

Infocom publishes some excellent adventure games – "interactive fiction" is another name for this genre. They run under CPM but are text-only. Don't expect sophisticated graphics from CPM unless you extend it with something like DRGraph. *But this has to cater for so many different computers that it is just too slow.*

Wow!

Will I get a reminder when my subscription comes up for renewal in February-March, or should I take out a new subscription now? Can I partake of any of your offers to new subscribers?

By the way, the *Drumkit* program on the Christmas tape contained the Reset Channel routine which I submitted to you many moons ago (AA 9) as an amendment to John Keneally's fine program, yet I see no mention of my small donation.

Congratulations to Richard Monteiro for his *Fastform* program, a very useful utility, and his sound digitizer (AA 15), which works wonderfully, albeit with a bit of distortion, which is due mainly to the tape circuitry, I think. By the way, if you type |RpM with this program – nifty!

Although I already knew my 464's tape unit was not in tip-top form, the tape-speed checker provided by John Keneally (Problem Attic 16) did help me to find out that it works at almost peak performance if the 464 is stood up on its front edge while saving or loading. Voila! Wow and flutter disappear. The differences range from +5.2% to −11.2% when lying normally, and +0.4% to −0.6% when on edge. Quite a significant difference, huh?

Has there ever been a poke for *Fairlight* on the 464? This game is so near to completion each time I die that I could scream. Help, somebody, please!

Peter Newman
Dungannon, Co. Tyrone

Why do you need a subscription reminder, Pete, when you know already? Of course renewers are entitled to the same offers as new subscribers. We'll think you'll especially like the one announced elsewhere in this ish.

Apologies for failing to credit your Drumkit patch. We simply copied our disk file onto the new master tape. Contrary to the type-in style guide, in adding your patch to the disk months ago we had failed to REM it appropriately at the top.

RpM is chortling: you were the first to discover his little surprise – and a little prize is on its way to you. And he says that his 464 works better when the keys are upside-down. (Which also discourages anyone else in the office from trying to use it.)

The only Fairlight *pokes we've received so far have been stolen from other mags, so we haven't published them. A challenge to you to do some original Irish hacking.*



Mastergames squared

I've got something for you and your readers to ponder over. This wordsquare contains 17 characters, places or things from Mastergames from all your magazines. For those who are missing issues 1 or 2: tuff, that's your hard luck; you should have purchased them when you had the chance. You will find all the answers in the Mastergame reviews.

P B Green
Pontefract
W Yorkshire

G	T	I	O	L	L	E	E	H	W	L	E	C	A	P	S	T	J	S
N	H	K	V	X	O	X	J	X	J	T	T	L	J	V	K	R	M	C
A	G	X	C	F	A	Y	S	H	A	R	E	T	H	R	O	A	W	O
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Q	N	C	U	S	C	B	X	O	N	Q	K	K	N	C	K	P	A	T
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N	I	O	A	E	M	I	O	Q	D	I	C	Y	Q	Y	T	N	J	S
B	G	O	A	P	K	N	V	Q	S	B	F	D	G	D	A	E	D	O
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N	E	C	D	B	R	J	C	X	L	K	V	T	V	W	F	V	C	T

Whew! Are we glad you supplied the solution, PB! We'll publish it next month. (At least we hope we can believe you: is that really what's in your sealed envelope?)

Run down the gauntlet

How on earth did "Gauntley" from US Mold get 92%? The graphics are crummy, the sonics are dull and the gameplay was so boring I fell asleep in front of my joystick.

I am in real trouble over *Fighting Warrior* as there is just not enough energy available in the game to win. I have never seen a poke for this game, so please could you print one if it is available?

Is Toot anorexic?

If there are any readers who want an expansion of *Elite*, please send me a cassette and £1.30 with a large sae to hold the cassette.

Gareth Jones
25 Golden Hil
Whitstable, Kent, CT5 1PR

Not liking Gauntlet, *you're in a minority, Gareth. Our tastes do seem to differ. Frankly, we find* Fighting Warrior *such a boring game. We published tips for it in issue 8, but never any pokes; so if anybody has any, post 'em to Gareth.*

We cooked up a wry reply to your anorexic question, and Toot ate it up – which we suppose answers you.

Helpline, please!

I desperately need help with *Starion*. I have racked my three brain cells for four days but I cannot get the password for entrance to the third time grid. The letters are tbs ame ais. I would be eternally grateful if anyone can help me. Also can anyone explain how to play *Nonterraqueous*; I am baffled.

J P Thorley
21 Dilhorne Grove
Dresden, Staffs, ST3 4QH

Obviously the AA team, even with nine brain cells among us, can't deal individually with all the requests like this we get every month and produce a megazine as well. But fine folk like Mr Thorley flounder in dire desperation. That's why we've established the Helpline. So if there are any experts in these two games willing to come to the rescue, please hearken to the cry in Helpline.

Defense attempt

I have just subscribed for the second time. Yippee!

I would like to defend Carl Jones of Swansea (AA 16 page 7, AA 17 page 8). For all you know he could have found the *Spindizzy* poke himself. If someone finds a poke, it doesn't mean nobody will ever find it again. If you want it the poke-stealing way then Kenneth Bamford (Cheat Mode 17) could have stolen *Trap Door* tips from the Christmas issue of another mag; if it's the both-found method then nuff said.

Bobby Cairns
Aldershot, Hants

Granted, two people could independently find the same poke, but they must be psychic if they choose the same variable names. As for Trap Door, *there is only one solution to the game. If the tips were word-for-word the same, complete with spelling mistakes, that would be suspicious.*

Next indexed

Continuing the trend in compiling indexes and lists, I have done the Cheat Mode section of AA issues 3 to 17. This is available on paper or as a database file to run on *Amfile* (on the Avalanche cassette on the cover of issue 16). Send me an sae and 45p, plus a blank cassette for the database file. Please realise that the postage will

be more when sending cassettes, so ensure the correct stamps are on your sae and your letter to me.

I have found this list very valuable as a regular games player. When having problems with a game I just scan my list to see if any of your great mags contains any pokes or hints. So I thought I could share this with fellow *AA* readers.

Steve Hanstock
145 Derby Road
Sandiacre, Notts, NG10 5HL

We're glad to hear of Antoine Robinson's Amfile finding such appropriate use!

Club-bugged

Please could you print this letter as it gives information about a club called Ambug which me and some of my friends have set up. For a reasonable membership fee you can join the club for a year. This entitles you to a special magazine packed full of reviews, letters, listings etc (similar to *AA*).

The membership fee also entitles you to discounts on software which we will be selling. If we have enough replies we might be persuaded to give away the odd free game or two, who knows!

The mag comes out every two months and would be sent to you straight away. To require more information send an sae.

Paul Gerfen
5 Harlyn Drive
Pinner, Midx, HA5 2DF

And us'll expect free ads for AA in your pages, Paul and pals!

■ Thank you for printing our letter concerning the formation of an Amstrad users club in B'ham. The club is now up and running, and we have use of a college just outside the centre of Birmingham. We are still looking for new members, however. So if anyone is interested in meeting fellow "Amsters", getting expert advice on the use of AMS's superb *Pagemaker* or even in gaining 99% on *Spindizzy*, then please write.

Robert Shepherd, publicity officer
John Woods
Birmingham Amstrad Users Club
54 Lockwood Rd, Northfield
Birmingham, B31 1QD

■ I'd like to inform fellow *Amstrad Action* readers of a wide range of type-ins on tape and lots of infinity lives on a leaflet, including a monthly newsletter subscription for one year. Please send me a stamp for full details. Love the mag.

Liam Sansome
4 Arizona Street, Glen Rd
Belfast, BT11 8AG

■ Thanks for printing the last letter concerning the user group (*AA* 17). Business has been booming since then. However, there have been a few changes. First, the group has had to close its doors to PC and PCW users due to the lack of interest on this side. Second, we now offer more services to members, including a library where members can hire computer books for a month at a time.

If any Amstrad CPC users are interested in the new "reformed" user group, please send an sae or stamp and I will be happy to send full details.

Gary Carter
United Amstrad User Group
1 Magnolia Close
Fareham, Hants, PO14 1PX

Into the slammer

You should make sure Toot is locked up at night so he cannot do any more late-night sessions which end up in wrong ratings. If he is so bad why don't you just sack him? Shoot him? Torture him? Rip his legs off? Just a few suggstions there.

Love the mag.

Nicholas Hill
Devizes, Wilts

Read this, Tony

Thanks for your grand Christmas giveaway tape, the utilities side of it anyway.

I really want to congratulate Tony Hoyle for his *Ramdisk* program. I have a 464 configured to emulate a 6128 by the DKTronics ram package, and it even worked on that. I can run CPM 3 on it by dubious means, and would dearly like to have a Ramdisk facility on CPM 3. Can Tony Hoyle help with this project?

I also have the Vortex 320k board fitted and can produce a huge ramdisk in CPM 2.2 – useless because no CPM 2.2 progs are available to use it. Any help with using the Vortex board in CPM 3? I have tried and have also written to the Vortex company: no answer, no dice.

Mike Barge
Cheam, Surrey

Downhill idea

I have just been watching some downhill skiing on tv and had a flash of inspiration from the end titles. They showed one of those films where a camera is mounted on a ski and then you get this film from the racer's eye.

It would make a fab computer game. The program would be a cross between *3D Grand Prix* and *Space Harrier*. Just take out the dashboard from the Amsoft game and put in the front of your skis and possibly your hands clutching your poles. Then the horizon across the screen, top half blue, bottom white. Small specks of black zipping past on the snow to give a sense of movement.

Then take the vector trees and vector-drawn gateposts like the ones in *Space Harrier* appearing in the distance and then flashing by in a second. The skis could possibly turn into each bend like the steering wheel in *3D Grand Prix*.

With multi-player options and realistic sound coupled with smooth graphics it would be a great game. I hope you can see what I mean.

George Brittton (age 14)
Dulwich, London SE21

Inkreased circulation

A few months ago I bought an Amstrad DMP-2000 printer to go with my 6128. I am delighted with the printer in all but one respect: the speed with which the ribbons dry up.

I decided to re-ink one of the ribbons myself so I opened up the cartridge assembly, soaked the pad overnight in black ink, covered the dry ribbon in ink and then reassembled the unit. The problem is that the ribbon dries up in just a few minutes. It seems that the pad is not transferring ink to the ribbon.

If you can help with this problem I promise I will buy a copy of *Amstrad Action* every month for the next ten years.

Jim Walshe
Eccles, Manchester

SOFTWARE WINNER

We didn't know whether to refer your letter to Problem Attic or to the circulation department, Jim. So we consulted Richard Knight of Data Aids Plus, a firm specializing in supplies for all makes.

First, a warning: you risk damaging your printer by trying to re-ink. Dot-matrix printers require a special-formula ink containing silicon lubricant to keep the tiny print pins happy.

Printer ribbons vary enormously in length. The one in the DMP 2000 and 3000 printers is a loop only half a yard long, whereas the PCW's is 11 metres. That's Amstrad's original; buy a replacement made by Pelikan and you get 14 metres. Even the Brother 1109 printer has 10 metres of ribbon. Owners of one Seikosha printer, however, have the same mutter as you: its cartridge, containing only 0.3m, costs £7 and doesn't last long.

Unfortunately there do not seem to be enough DMP printers out there for third-party manufacturers to produce competitive ribbons. The Amstrad DMP ribbon sells at just under £6 from Smiths or suppliers like ours.

There are two things you could consider. Evaporation shortens the life of a ribbon, so don't keep the printer in a very dry place. And quality of paper affects both ribbon and printhead. Cheap "hard mechanical" paper is deadly to both, because tiny bits of wood pulp come away. A nice smooth paper gives a sharper, crisper, blacker image; on cheap paper the image spreads.

It isn't a question of quality of inking so much as usage. Low-cost printers are regarded by manufacturers as low-use printers. You don't say how much you churn out, but if you're producing 200,000 sheets of paper a month, you must reckon on going through a few ribbons.

We'll expect your subscription cheque for £165 in the post!



Free lunch in Denmark

They say Denmark's the best place in the world to live, but you pay twice as much for computers and software. So, on a trip home [to England] last September I bought a 6128.

Then came the hard part: what software and games should I buy, and which magazine should I take to keep up with the news? *Tasword* has proved ideal for my business, but when it came to games, a bored shop assistant said, "Yes, sir, arcade, strategy, shoot-em-ups, adventure, war or straight games!"

Being a middle-aged beginner who hadn't even plugged the machine in, my mouth dropped open and I grabbed a handily placed copy of *AA*. A quick scan and *Doomdark's Revenge* and *Fourth Protocol* became my first – never regretted – acquisitions. It also solved the magazine problem. One game advertised but not reviewed in AA looked good; I wait for your thumbs-up.

End of long preamble, now to the point.

There must be thousands of new owners who would be glad of a beginner's guide or quarterly supplement explaining jargon, listing current games and software under categories and headings with your review ratings and comments where appropriate. Playing tips and maps could be included or cross-referenced to the issue of AA where they appeared. Get a reader at the start of his com-



puter career and you have him for life!

Incidentally, I am going to spend the rest of my life working out the password for the lift in Sentinel House in *Fourth Protocol*, or has Barry North (Cheat Mode 15) or anyone a playing guide to part 2? A free lunch at my restaurant in the North Jutland Museum of Contemporary Art to anyone who can help!

Roger Ebben
Landlystvej 21
9210 Aalborg 50
Denmark

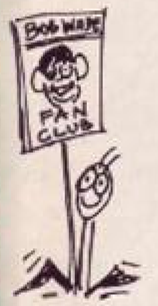
We must either publish an AA index or index the requests to do so!

Copyright – okay?

If you buy a game and make a backup copy of it that's okay, or if you lend it to a friend for a couple of days that's okay too (by me anyway). But if you sell it our your friend copies it, then that's breaking the copyright laws, as you are making or saving money from someone else's hard graft.

I think your reviews are getting better by the issue. I think that Chris Boothams comments are brill, I agree with him every time, if he says its good I'll go out and buy it but if he does not like it then I will avoid it. He is much better than ex-zappite Bob Wade.

Joe Apted
Wembley Park, Midx



It's always been that way with copyright. Chris Boothman agrees with you on both points.

That ripped-off feeling

Thank you for saving me from Ocean's bum *Laser* series. I had ordered two from Home Computer Club and then read the letter about *Laser Genius* so I was already prepared for a ripoff. *Laser Compiler* is totally useless without a lot of messing about. After six attempts I finally got a simple `for-next, print chr$` loop to compile; everything else I tried was rejected for various reasons. *Laser Basic* is a mystery package, as there are no on-screen instructions of any kind and the manual is printed black on blue and the script has errors of syntax. I got to page 11 of the manual and gave up. I can well understand Oasis's demise and why Ocean doesn't publicize this.

I wonder if there is any industry standard for software. There is an awful lot of dross about, and perhaps your magazine could give readers the opportunity to publicize their discoveries – and, to be fair, the excellent programs. For example, I had a book from Boots called *Advanced User Guide Amstrad Graphics*. For 6128 users this would be excellent, but by putting in a catchpenny 464 page they spoilt a good book (albeit full of omissions and syntax errors) and brought down the wrath of us 464 owners.

I disposed of my problems through the Trading Standards Office, and I would advise anyone who is being or feeling ripped off to contact the same at the local town hall. (Boots sorted out my book problem as soon as I wrote to them.)

I have just cancelled *Computing with the Amstrad* as they would persist in making their business section larger and larger and all machine-code stuff. I like Basic, I like your magazine, so more power to your arms and Amstrads!

Bob Caffrey
Southwick, Sussex

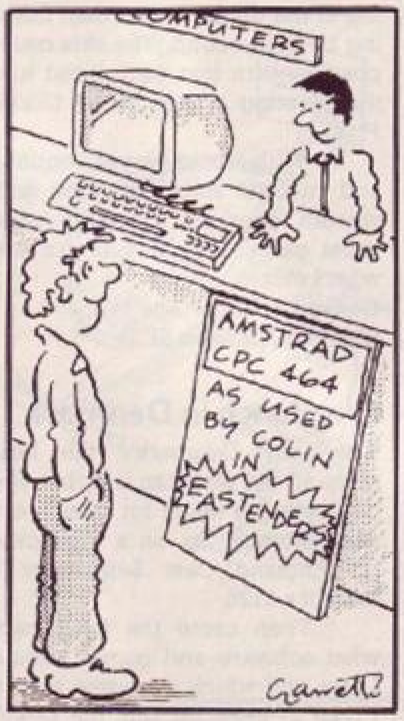
Laser Compiler *got a generally favourable review in AA 8. Andy Wilton's review (AA 10) called* Laser Genius *"the definitive assembler packaged with a truly useful monitor and a pricetag under £20 – buy it." RpM agrees with him; if it were on rom he'd probably prefer it over* Maxam. *So you must have hold of the wrong end of the stick, Bob. Unfortunately Ocean is offering no support to Oasis customers since Oasis went down.*

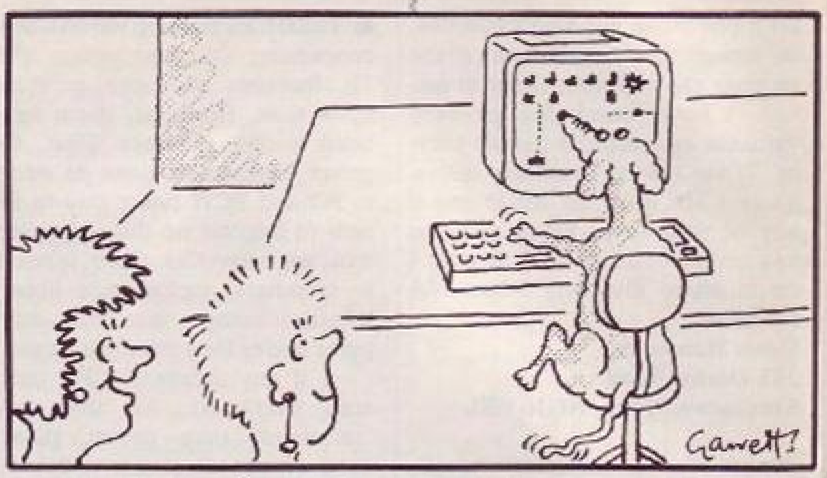
Wait till you read Wade

I think I speak for many who have bought games that look good in the advertising campaigns or on their boxes and then find a really terrible game inside. Nowadays you mainly have to rely on advertising because retailers forbid you to try games out beforehand.

Robert Edmonds
Lichfield, Staffs

It's been said before: You're better off relying on the AA review.





"OH, HE'S NOT REALLY THAT HOT – I CAN USUALLY BEAT HIM..."

Having a good time

In July 1986 I owned a Spectrum put an advert into a popular Spectrum magazine. Since then I have bought a CPC 464 and a lot of hardware and software for it. Just after December I started to get phone calls about an advert in a magazine. I thought to myself, "What magazine? What joystick? What game?" Six months it had taken to print one advert!

I will be interested to see just how long this letter will take to be printed.

Timothy Hayney
Hoddesdon, Herts

Here you are, Tim: your letter was dated 21 January. It's now early February and we're setting most of Reaction 19 in type. Some other pages close as late as mid-Feb. This mag hits the newsstands on 5 March. That sort of timeframe applies in editorial areas of all monthly magazines. Paid ads have different deadlines, of course.

Contradiskion

Can you reconcile the following two points?

1 Three-inch disks are about £3.50 more than cassettes, retail (before the recent price decrease). Obviously software companies will be able to obtain them for a considerable discount.

2 Disk software costs, in nearly all cases, £5 more than the identical tape version.

M E Tipping
Newcastle, Staffs

Discopy Ltd in London tells us it costs between 20p and 40p to duplicate a tape but £2.35 to £2.50 to duplicate a double-sided disk – subtract 20p for single-sided. If the disk is heavily protected and the duplicating programmers need to write a special routine to copy it, there would be extra charges.

So, your two points are hard to reconcile. The differential should be more like £2.50. Any software houses like to comment?

■ Hewson and Ariolasoft among others charge an extra £6 for their disk games and Firebird bumps up the cost by an amazing £7. If the disk game is an enhanced version of the tape game (like *Sorcery Plus*), this partly justifies the increase in price. However, it is then up to magazines to highlight the fact in their reviews. Until then, I will continue to buy the tape and hack it onto disk.

Congratulations to Durell with its disk version of *Thanatos*. Only £3 more than the cassette, and apparently only £1 extra if purchased directly from them. Let's hope other software houses follow its excellent example.

Mark Lawrence
Bury St Edmunds, Suffolk

More moral

After reading Mike Roberts' letter (Reaction 17, about game that "actively promoted the use of nuclear weapons") I felt obliged to write and point out the countless games concerning killing and war by conventional methods. Indeed most games released involve destruction in one form or another.

Cannot we say therefore that these games are "actively promoting" the use of conventional weapons? Spare a thought for the thousands who died in the first and second world wars and all the pain and suffering caused to relatives and homeless. I feel it is more horrific to be involved in a conventional, slow, painful war than a fast nuclear one which we wouldn't know anything about. Would you rather be shot through the heart unexpectedly or be boiled alive?

Luke Peters
High Wycombe, Bucks

Neither.

Penpals, please

■ **Lee Chapman**, 295 Towngate, Ossett, WF5 0QD

■ **Mark Dowling**, Ballindangan Cross, Mitchelstown, Co. Cork, Ireland

S©hool for s©andal

My friends at school have Amstrads or Spectrums, and they all copy games. They are members of a local computer library, and they all hire games and then copy them, using a double tape-recorder. I am no longer friends with them because they asked to copy some games, and I soon learned what they were doing.

I went to the computer library where I bought *Gauntlet* to talk to somebody working there about the games copying. The woman asked me for their names. Unfortunately I still know that they are copying games, despite warnings that it is illegal.

I think it is dreadful. It is not only illegal, but also unfair to people who save up their pocket money and buy the games (which is a vast majority of us). It is also unfair to the softgware house and most of all to the programmers, who put a lot of hard work into their games.

I also want to say how dreadful I think the DK'tronics lightpen is, as the cursor on the screen jutters around a lot and will not move properly around with the pen. Do you know if this is a problem with just my lightpen, or are all the DK'tronics ones like that?

My final point is that anyone wanting to buy budget software should go to Boots at Brent Cross Shopping Centre, Hendon, where you can get *Yie-ar Kung Fu, Geoff Capes Strong Man, Dynamite Dan, Herbert's Dummy Run* and loads more for the exceptionally good price of £1.99.

Please could you print my name and address on the penpals list? I am 14 and have a CPC 464.

Guy Sanders
270 Willesden Lane
London NW2

You've said it all, Guy.

Lightpens in general have not been noted for great accuracy. Two manufacturers, Electric Studio and Dart, now sell new lightpens that use fibre-optics – Dart at four times the price. DK'tronics does not pretend its lightpen is professional quality (although some professionals use it). It's designed for selecting from menus and for use as a brush rather than as a very fine pen. You can get quite good effects using the software provided. DK has sold at least 20,000 units for the Amstrad and 50,000 very similar ones for the Spectrum, with very few complaints.

■ I have the programming skills of a disabled caveman, and I will admit that I use my 6128, with disk drive and two banks of 64k, for games and games only.

Ten pounds a game is not a realistic price for me to pay, so inevitably people break the copyright law. I personally have about 38 games. Over the last year I have bought four games.

I have only three problems with your mag: Get some good staples (my issues have pull-out supplements). Review some puggie games. Get rid of the half-wit comments at the bottom of the page.

Gordon McManus
Hamilton, Midlothian

What in the world is a puggie game? Are you sure you didn't miscopy it?

We never said free

I have taken your magazine since issue one, and by and large I am well pleased, even if a "free" tape puts the cover price up 50p. The last tape was disappointing.

P Flintoff
Hartlepool, Cleveland

We nowhere said the tape was "free". We're sorry if you didn't like the contents of the Christmas tape; most readers did like it. In any case it's worth 50p even if you blank it.

■ I got a copy of AA 16 with the Christmas tape and really enjoyed it. I think it is great value for the tape at an extra 50p. The programs on it were really excellent. After loading *Druid* I enjoyed it so much that I went out and bought a copy of it for myself.

The programs on the other side were also good, especially the one to turn the disk drive off. Now I can load some of my tape games which wouldn't load before.

Gary Hudson
Micronet 011 110 176
Filey, N Yorks

Yours hopefully, Hull

Would you print my full name and address? Residents of Hull and Cottingham could contact me with a view to exchange of information. I specify *local* residents as all my replies to people in Timbuktu, Devon, Scotland, Barnsley, San Francisco and all points west of the Mason-Dixon line resulted in a stony silence. What their idea was in requesting penpals I know not.

I like your games reviews generally and rely on them before I spend ten quid on rubbish. You do not, however, include addresses of the small firms who very often turn out very nice little games. I've been waiting to obtain the address of Mastertronic so that I can buy *Pipeline* (1 and 2). Would it be a good idea to desist from describing rubbish and print a few addresses now and again? The rubbish can be disposed of in a couple of lines for each game. If the dear readers have any sense they'll take notice of your infinite wisdom in these matters.

Robert Lamb
82 Finkle Street
Cottingham, E Yorkshire
HU16 4AZ

Mastertronic is hardly a small firm. It sells more games – units – than any other. But here's the address: 8 Paul St, London EC2.

Now and then a game so diabolically awful can be great fun! The reviewer gets a chance to let loose, and – be honest – you like to read wicked wit.

By the way, you've got the Mason-Dixon line running the wrong way. Two English astronomers (Jeremiah and Charles respectively) drew it in 1767 to settle Pennsylvania's border dispute with Maryland and West Virginia. Check a map.

See you in Singapore

I'll be going back to Singapore soon, and I don't think I can get AA in any newsagents there. How much will it cost to mail-order AA and Amstrad games from there? Will it take long to arrive?

Please don't give Raves out so generously; it makes me wanna buy them!

Wayne Goh
W Acton, London

Subscriptions (yours expires in September) by sea to Singapore cost £22.26; estimate six weeks. Wait just over one week by air, worth £27.78. You can certainly order software from our superb mail-order service, adding £1 per item for airmail.

Interstellar dust

After reading your review of the *AMX Pagemaker* I am quite tempted to buy it, but I don't know if it is compatible with my Brother HR-5 printer. Please could you tell me if it is or not?

Justin Mason
Shanklin, Isle of Wight

Unfortunately we can't keep an entire stable of all types of printer etc here at the Old Barn. We print the company's telephone number with serious-software reviews so that readers can put technical questions like this direct to the horse's mouth. And anyway from our stricken phone exchange we are at present unable to make long-distance calls.

Helpline

The Helpline has its first response from eager Amstrad experts ready to help out those having problems. Just a brief reminder that you can offer help on any subject to do with the CPCs – whatever expertise you can provide.

If you want to become part of the Helpline, just send us your name, address, phone number (say so if you don't want it to be printed) and subject on which you want to help. Please write on a postcard or the back of a stuck-down envelope. The peculiar stationery requirement will greatly help the administration of the section. Send to: **Helpline, *Amstrad Action*, The Old Barn, Somerton, Somerset, TA11 7PY.**

Here are the first batch of volunteers. Remember if you contact them by post you should include a self-addressed stamped envelope for the reply; otherwise you're unlikely to get a response. After all they've been good enough to offer their services, so we don't want to cost them money, now do we!

tape loading, using CPM, Minerva database, *Tasword/Taspell 6128, Art Studio, Tascopy, Multiface 2, WordStar, AMX Pagemaker, Planit, Discovery Plus*
Mr R Cope, 171 Honiton Road, Exeter, EX1 3EP

programming in Basic from beginners to advanced, sound (three-channel music, effects etc), graphics in Basic (animation etc), tape problems, flight simulations (he's got them all!)
Cameron Kane, 6 Kilbreck Gdns, Bearsden, Glasgow, G61 4SL

programming (mainly Basic but some machine-code)
Jeffrey Hunt, 2 Deweys Way, Gillingham, Dorset, SP8 4BW

completing *Batman* and *Druid* (use map locations from *AA* maps)
Darren Roofe, Lyndhurst, Station Road, Middle Drove, Wisbech, Cambs, PE13 8JP ☎ (0945 73) 276

AMSCENE

Monthly update on what's new on the CPC scene

Slam-dunk or sunk?

Two simulations are on their way from Activision for two sports not usually associated with computer games. *Championship Basketball – Two on Two* where you are partnered by the computer in one- or two-player games of basketball, and *Sailing*, a game based on the America's Cup Race.

Two on Two is promised to have "the most realistic graphics ever created for computer basketball" and feature hooks, tip-ins, jump shots, dunks, practice sessions and a 23-team league competition. *Sailing* will allow you to build and then race your boat against 15 other nations after the biggest prize in yachting. Winged keels, spinnakers, tacking, winding and wind shifts all play their part – just don't sink.

Both games will cost £9.99 on cassette and £14.99 on disk.

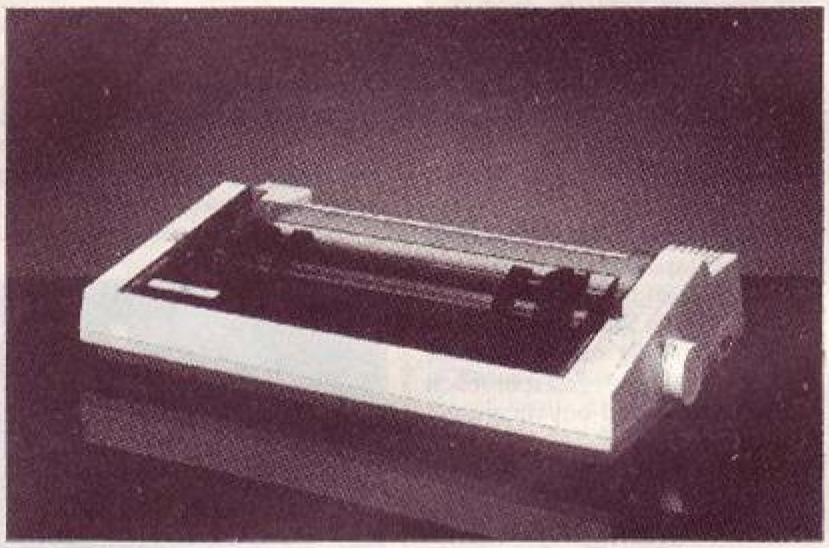
Amstrad launches new printer

A new printer from Amstrad, the DMP 4000, is aimed at the PC 1512, but it is Epson-compatible, which means there should be no problem using it on any of the CPC machines. It was launched at the Which Computer Show in mid-February.

For £349 plus VAT it will probably be of most interest to the businessman. However, its specifications make it an exciting prospect for the home user with a large budget: over 100 different typeface combinations including NLQ (near letter quality); complete Ascii and IBM graphics character sets; printing speeds of up to 200 characters per second (50 cps for NLQ); wide enough for paper up to 15 inches; 233 columns (condensed mode) and 136 columns (standard).

It has a 24-pin print head – which won't really be of much use to you unless you print in Chinese, Japanese or Arabic characters, or until software is written to take advantage of it. Our alphabet uses only the ordinary nine pins.

The stylish design of DMP 2000 and 3000 printers, with their front-loading paper system and tractor pins that push rather than pull the paper, has not been carried forward to the 4000: more of a Seikosha look has been given to it. For further information contact Amstrad plc on (0277) 23 0222 or wait for an in-depth review in next month's *AA*.



Grange Hill on your CPC

Argus Press, producing some high-standard software recently, is bringing the Grange Hill saga from BBC television to your Amstrad monitors. Those adolescents of dubious scholastic standards should hit the streets – at £9.95 – by the time you read this article.

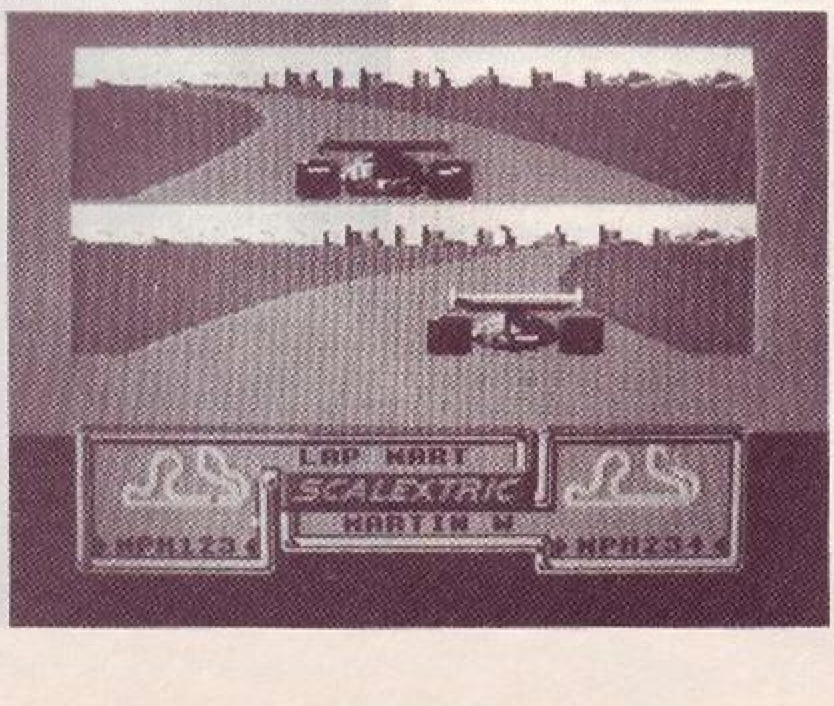
You play the part of Luke 'Gonch' Gardner. Your Walkman was confiscated in class earlier that day for being disruptive. Your mum insists on seeing it every evening when you return home – especially after the other one was stolen from the staff room when it was confiscated.

Rather than face your mum's sharp tongue you decide to go back to school and steal back your Walkman from the staff room, with the help of friend Paul 'Hollo' Holloway.

From what we can gather *Grange Hill* is an arcade adventure where you will have to avoid bumping into people, such as the school caretaker, and negotiate a maze of heating pipes. It will even be possible to hold conversations with other characters if you meet them. There should be plenty of puzzles and strategy elements to hold everyone's interest.

Brrrm, brrrm, brrrm

Virgin is set to release the latest game under the Leisure Genius label. It's a computer motor-racing game based on the ever-popular Scalextric system. The split screen shows two cars racing simultaneously, and it obviously isn't going to be an accurate simulation because there aren't any slots in the track or giant cats overturning the cars. This will probably revive a few childhood memories. Cars are like train sets: you're never too old to play with them.



Backup the mains

Matchpower Systems Ltd has a range of emergency backup or standby power supplies and line-conditioning units. These are normally marketed by British Telecom but are now available direct form the manufacturer in Lincolnshire.

These units are ideal for providing pure and unbroken mains power for computers and communications or security systems. We could have done with one last week when road workers cut through a mains cable: we lost power, our fancy telephone system and many hours of work.

Power outputs range from 60 watts to 10 kilowatts; prices range from an equally impressive £23 to £3000. Further details from Matchpower Systems Ltd, Holmes Court, Boston Rd Industrial Estate, Horncastle, Lincs, LN9 6JW, phone (06582) 6390, or from Telecom's Freefone Powerguard.

Search for a star

Microprose is one of the biggest names in entertainment software in the US. Until now its products have been marketed in Britain by US Gold, but now it has set up its own UK operation. Simon Barnard has been appointed software development manager and is on the lookout for talented programmers. "We believe that the UK has the best Amstrad software writers. And my job is to find them and offer them not only money but international recognition," he says.

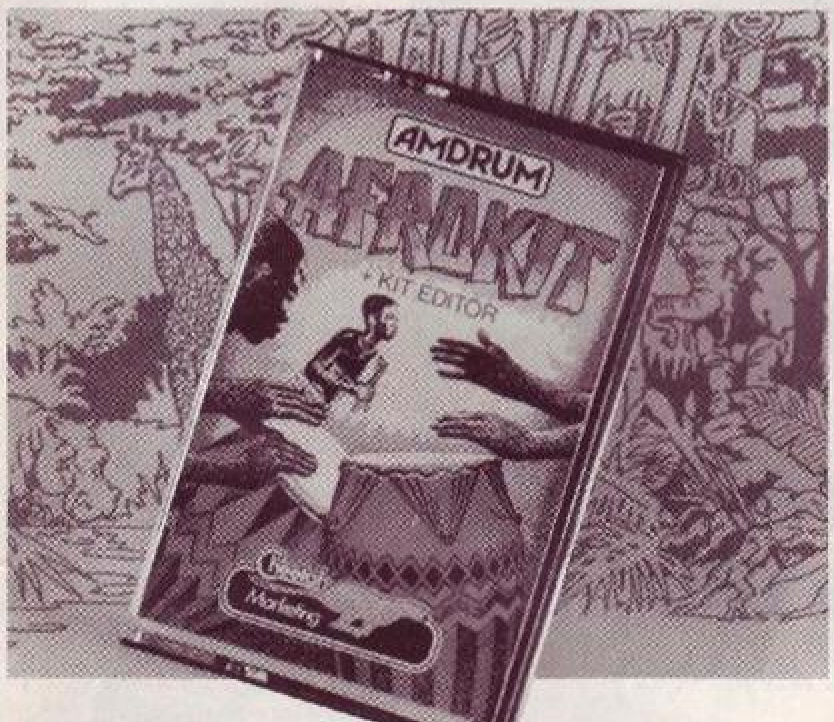
Microprose is best known for its high quality simulations like *Acrojet* but it also is interested in top-quality arcade games. If you think you've got the potential to be a software star then Microprose can be contacted at 2 Market Place, Tetbury, Gloucestershire, GL8 8DA; ☎ (0666) 54326.

Dig that Afro beat

Cheetah Marketing, responsible for the highly acclaimed *Amdrum*, has launched another set of voices for its digital drum system.

£5 buys the Afro Kit with editor. The kit contains eight new sounds: trunk, buash, hi conga, lo conga, clave, coconut, guiro and whistle. This new release brings the total number of drum-sound kits to four – standard rock (free with *Amdrum*), Latin, electro and now Afro.

The kit is available direct from Cheetah – (0222) 77 7337 – or from many High Street stores and computer shops.



Mastertronic acquires Melbourne House

Mastertronic, the long-established budget software house, has acquired Melbourne House, producer of such games as *The Hobbit* and *Way of the Exploding Fist*. The acquisition means that Mastertronic now has an entry into the full-price software market. Quite how all this will affect Melbourne House's product isn't yet clear, but you can bet that with Mastertronic involved things will happen fast.

In a separate move Mastertronic has also formed an arcade-games division in the United States called Arcadia Systems Inc. The new head of Arcadia predicted that it will be "the first true large-scale publisher of video games in the coin-op medium."

NewWord with solo disk

We were wrong in one of our unkind remarks about *NewWord* in last month's word-processor feature. "Bad news," we said: "needs dual-disk system." That is not strictly true. You can get away with a single disk drive, but you will have to fit your text files onto the same disk with *NewWord* – not much room, since the wp takes up 165k. Neither *WordStar* nor its clone like you trying to change disks, but you could delete some of the help files from your workdisk.

Meet Martech's Nemesis

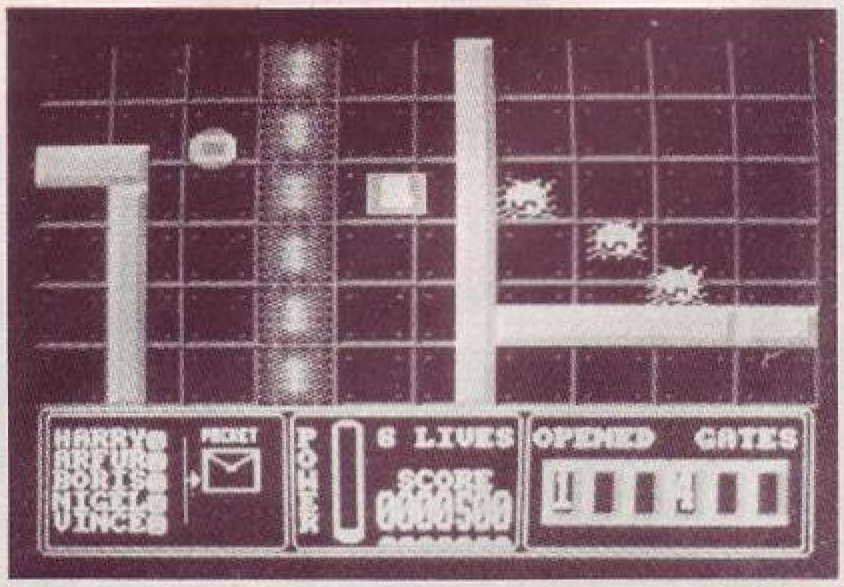
Martech has licensed the 2000 AD comic character Nemesis the Warlock to appear in his own computer game sometime in the spring. The plot behind the game is that Nemesis leads a resistance movement against Torquemada, grand master of the Terminators. Torquemada has destroyed all alien life on the planet Termight and now he's starting work on the rest of the galaxy. Good old Nemesis has to stop him – after all, you can't leave the galaxy to the mercy of a bunch of bloodthirsty humans.

In the game Nemesis has to fight off the Terminators and overcome different obstacles to try to get to Torquemada and destroy him. Nemesis is armed with his sword Excessus, a gun and the ability to breathe fire when needed. Get far enough and you'll face a final battle against Torquemada.



Also coming soon from Martech is *Pulsator*, described as a "multi-maze shoot-em-up with a challenging puzzle". It's composed of five levels of 49 screens, each level containing an imprisoned "pulsy". You control a sphere that has to make its way through the maze layout, free the pulsy and proceed to the next level.

Aliens fill most of the screens and can harm your sphere in several ways, you can blast them all though. The maze is made up of walls and numbered gates. You open and close the gates by passing over the corresponding number on the background with the sphere. This is where the strategy element comes in: as the layouts get more complicated and the aliens meaner, things get tough. We should have a full review next month. The game will sell for £8.95 on cassette and £14.95 on disk.



See data register in library

You can now go to any of 171 public libraries in Britain and ask to see the register that was set up by the Data Protection Act 1984. The first 77,000 entries are on microfiche as a pilot project for the public to see how entries are set out.

The Act demands that anyone – organization or individual – holding information about individuals on computer must give the Data Protection Registrar details of the type of information held and how it is obtained and used. These details are then included in the register, which is open to public viewing.

"We are keen to encourage early comment on the way information is displayed," said the registrar, Mr Eric Howe, from his Cheshire headquarters. He wants the register to be easy to use and is open to suggestions.

Individuals already have a number of new rights under the Act, including the right to claim compensation as a result of the loss of personal data, destruction or disclosure of it without proper authority, unauthorized access to it or the holding of information which is factually inaccurate. You can also have inaccurate information corrected or erased.

After 11 November this year you will also have the right to ask a data user for a copy of your own personal details held on computer.

Anyone holding computer data about other people is required by the 1984 Act to register. But there is an exemption for "personal data held by an individual and concerned only with the management of his personal, family or household affairs or held by him only for recreational purposes."

Price cut for 5¹/₄" drive

Silicon Systems of Manchester has announced a £30 drop in price of its Megadrive, the only 5¹/₄-inch disk drive completely compatible with Amsdos, CPM 2.2 and CPM Plus. The original price was £229, including interface, software and built-in power supply. Due to a reduction in the cost price of the drive mechanisms, Silicon is offering the drive at £199. Silicon's telephone is 061-848 8959.

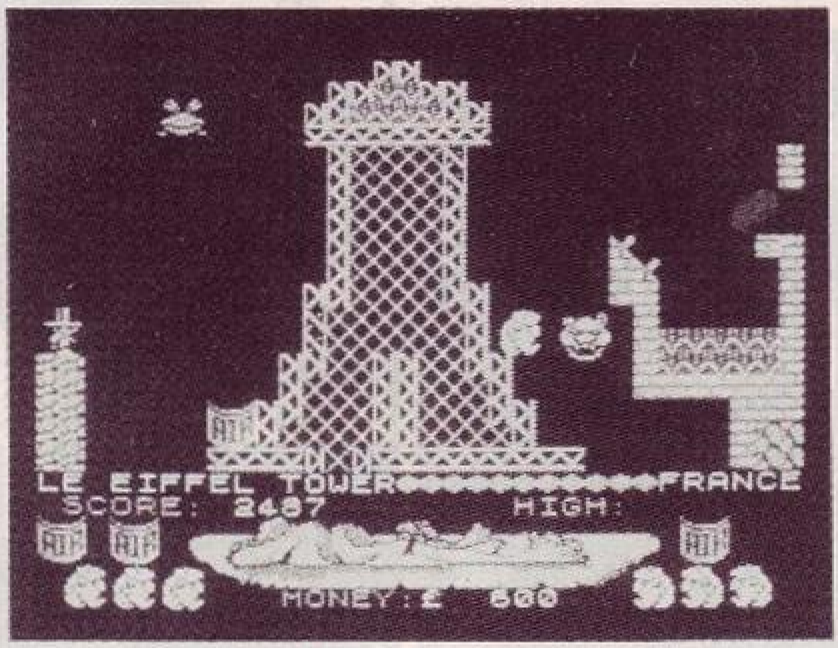
Swansong for a mole

Monty Mole makes his farewell appearance in a computer game soon: his last burst for freedom comes in *Auf Wiedersehen Monty*. Having escaped from prison in *Monty on the Run* he's now fleeing across Europe.

He's got to stay out of the clutches of the law and raise enough cash to buy a Greek island where he can burrow happily ever after. Apparently it's going to be a platform game where you have to complete money-making tasks in the cities of Europe. Simple things like stealing the *Mona Lisa*, winning a grand prix and being aided and abetted by the Mafia.

Also on the way from Gremlin is *Krakout*, which from the sounds of the press release is *Breakout* gone crazy. Among the delights it's supposed to offer are an ogre who chews up missiles, regurgitates them and spits them back at you. More than that I cannot tell you because I'm not sure I'll understand what's going on even when the game arrives.

Gremlin has an offering in the compilation market that should prove popular. It features four games, three which are good and one which isn't. The three decent games are *The Way of the Tiger*, an entertaining martial-arts game with excellent animation, *Barry McGuigan's Boxing*, still the best boxing game on the Amstrad, and *Rescue on Fractalus*, the debut of fractals on the CPCs in a testing shoot-em-up-cum-rescue-mission. The duff title is *Beach Head II*, a bad conversion, but the other three titles are enough to make the package excellent value. It costs £9.95 on cassette and £14.99 on disk.



Art the easy way

A new art package is looming over the horizon: Easiart. Micro Draw Ltd are the people to contact (0622 685481). The package works with tracker ball, mouse or joystick and costs, on either cassette or disk format, £16.95.

The package boasts the usual spray, line, circle, and freehand drawing facilities with the inclusion of: zoom, eraser, text entry, fill, cut and paste and an icon generator. Next month we hope to bring you a complete review of this reasonably priced package.



Rest in pieces

Ariolasoft's latest game looks set to make the chills run up and down your spine. It's *Bride of Frankenstein*. You play the bride who, for some strange reason, actually wants to revive the spare-part monster for the wedding day.

To get freaky Franky back on his, or someone's, feet you first have to get a spade, pickaxe and lamp to aid you in the act of grave-robbing. Once equipped you have to go in search of lungs, kidneys, liver, brain and heart. These aren't for consumption at the reception, but to breathe new life into old bolt-neck.

Ghouls and zombies are to accompany you around the 60 rooms of the graveyard. If the stress all gets too much for the poor bride she keels over from heart failure. Can't wait for some gruesome graphics in this one.

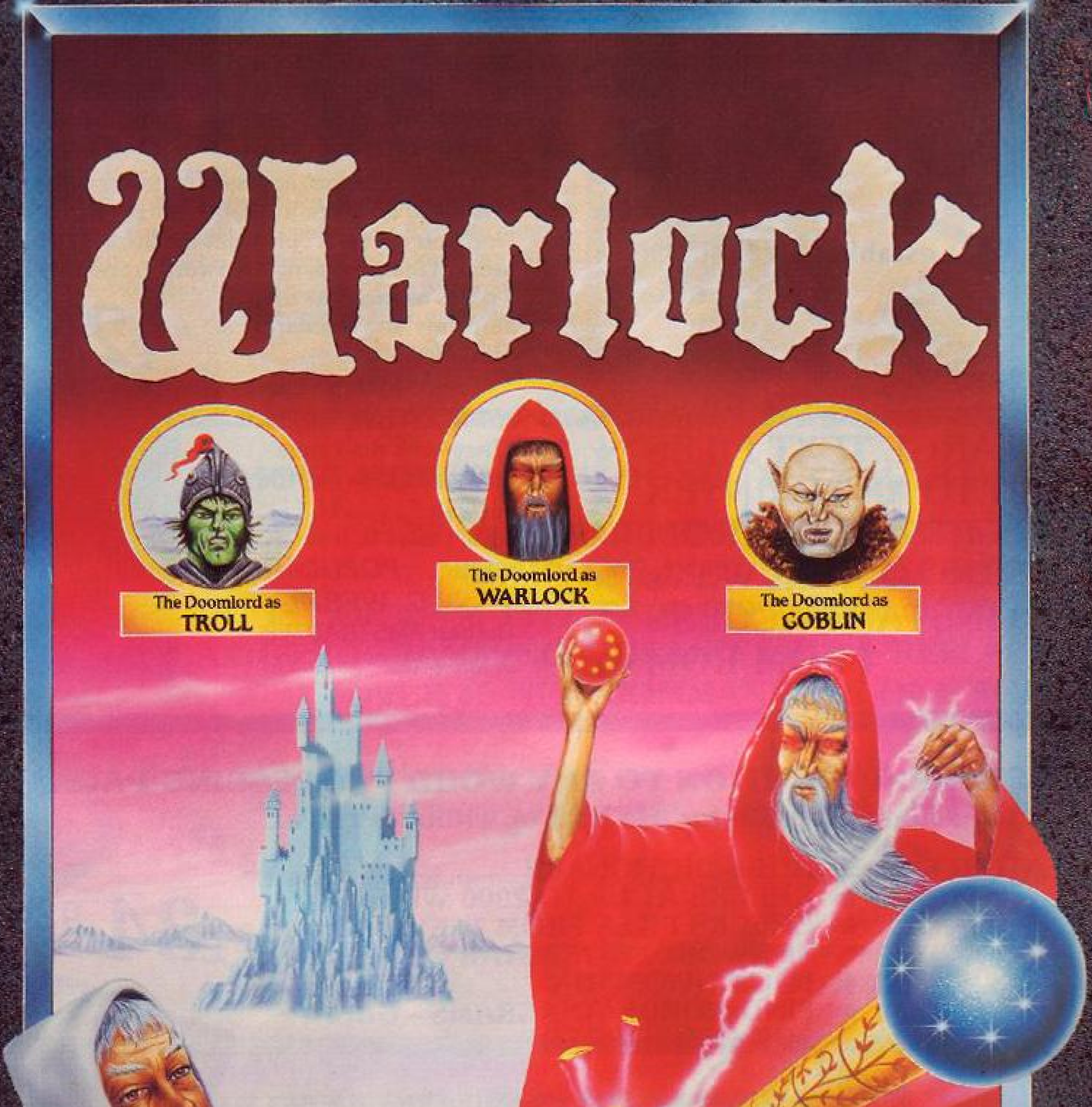
Starglider competition winners

There was a massive response to the competition in *AA* 17. The lucky winner of the first prize, a Veron Vortex glider and a copy of the game, is **Stephen Lamport** of Redhill, Surrey.

Ten runners-up get a copy of the game: Nick Moss, Orpington; Ming Lo, Crossgates; C Varney, Ilkley; J Fox-Geen, Reading; Nicky Willis, Harwich; Michael Aldridge, Telford; Stephen Crabtree, Dyfed; M Watkins, London N4; N Kirk, Newport Pagnell; T Trafford, Barnoldswick.

50 third prizes of a balsa-wood chuck-glider go to: Michael Hughes, Armagh; Stuart Chandler, Worcester Park; Jude Dersley, Plymouth; Helen Scott, Morpeth; Chris Barton, Whitstable; Stephen Impey, Impington; Bradley Joy, Horley; Andrew Hamilton, Cowley; Alpesh Patel, Northampton; Kevin McAdoo, Ballincollig; Kenneth Watson, Redcar; Justin Hampton, Ashford Common; David Winter, Northwood; Shaun Purcell, Rugby; Paul Nardone, Larkhall; Andrew Godliman, Thetford; Matthew Entwistle, Blackburn; MJ Williams, Kingsheath; Scott McDowell, Glasgow; Andrew Mohan, Glossop; David Rees, Rawtry; C Cameron, Whitley Bay; P Finelli, Maidstone; Nicholas King, Tunbridge Wells; Stuart Whyte, Altrincham; J Price, Glossop; Simon Machell, Wallasey; Don O'Neill, Killarney; Mark Jones, Spilsby; B Poulter, Chichester; David O'Donnell, Lisbellaw; N Anolhe, Edmonton; Ross Oldfield, Naseby; RA Bewes, Salford; Jonathan Keith, Okehampton; J Mortuza, London E13; Gavin Flynn, Norwich; Paul Stevens, Catford; DM Pampel, Woodley; AJ Jones, Bristol; Lee Anthony, Chelmsford; Robert Hallett, Tring; K Jewell, Tatsfield; J Hall, Glossop; J Smeets, Venlo; Charles Joynson, Bradford; J Potter, Telford; A Mason, Peasedown St John; Christopher Baker, Staines; James Purnell, Hinxworth.

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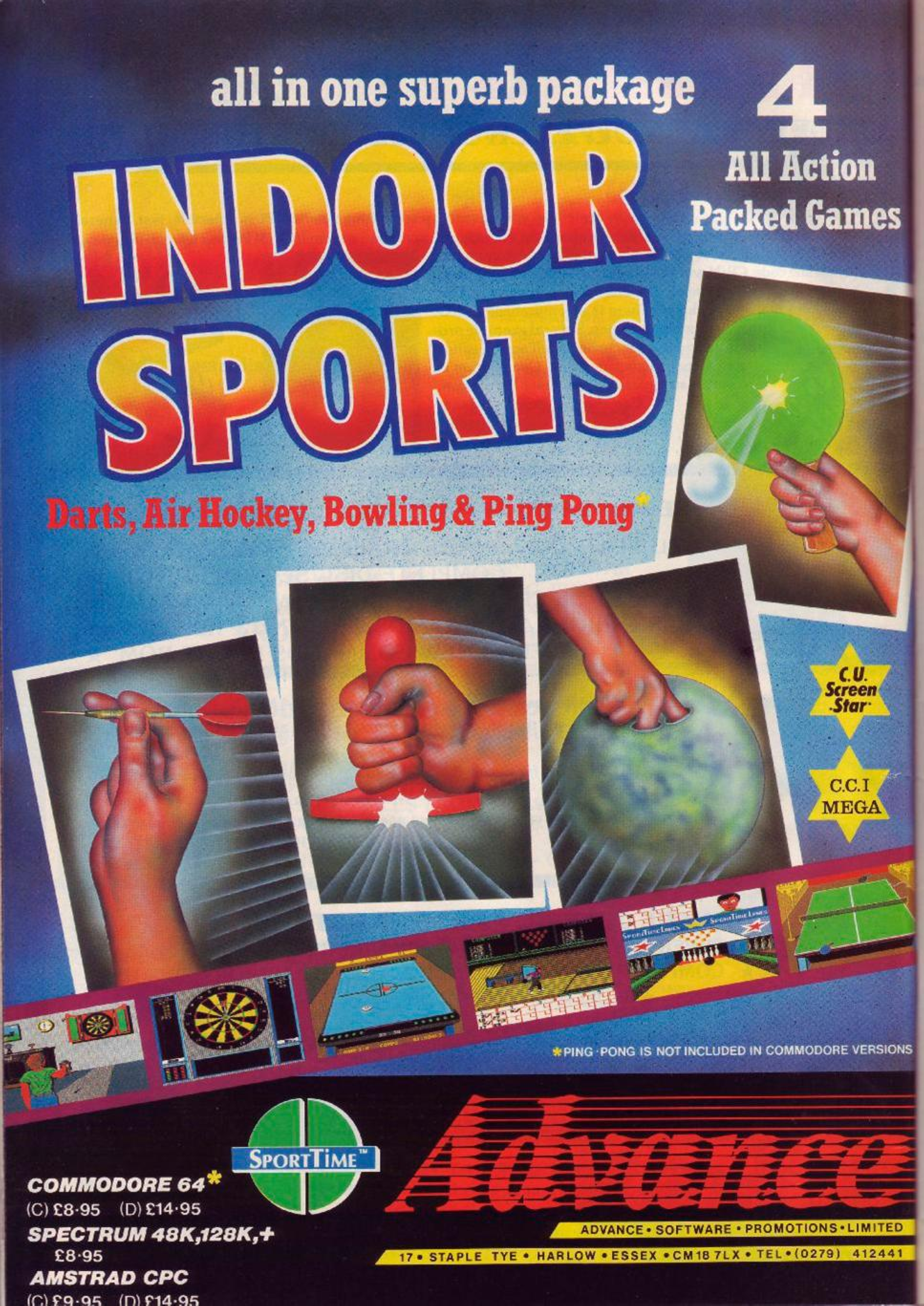
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TYPE-INS

Chimes to drive you dotty, characters to define and rotate in 3D – if none of these patterns take your fancy, try the hangman

Printer typefaces

If you're already shuddering at the thought of typing this horrifyingly long program, let me point out it's well worth it!

Gordon Yacomine of Dundee has written an extremely useful program with extra commands to let you access different type styles (on your printer) without needing to remember long strings of control codes.

The various commands available:

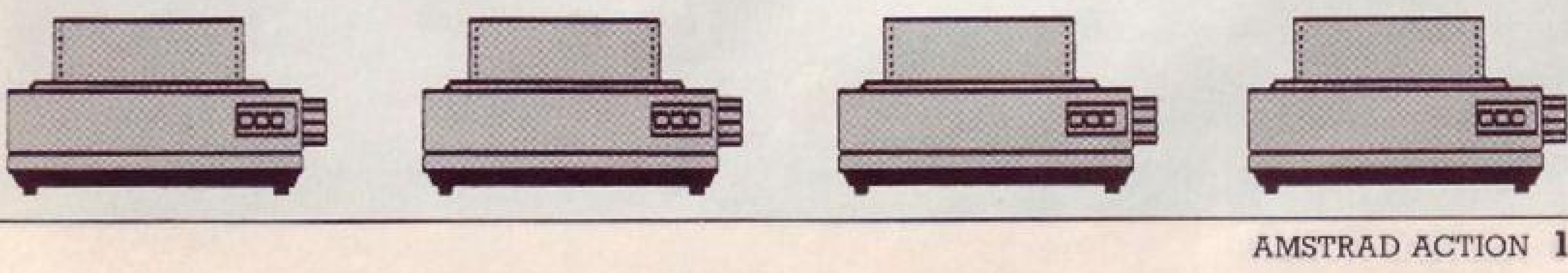
|NLQON	near-letter-quality
|MINION	mini typeface
|PROPON	proportional printing
|CONON	condensed
|SUBON	subscript
|SUPON	superscript
|DBLON	double-strike
|ITALON	italics
|BOLDON	bold
|UNDON	underlining
|DBLWON	double-width

Notice that each of the commands ends in 'ON': this tells the program to switch on the chosen effect. Every command can have 'ON' replaced by 'OFF'. So, for example, this prints the sentence 'What a nice day!' in bold, with the word 'nice' in italics:

```
10 |BOLDON
20 PRINT #8, "What a ";
30 |BOLDOFF:|ITALON
40 PRINT #8, "nice ";
50 |ITALOFF:|BOLDON
60 PRINT #8, "day!"
70 |BOLDOFF
```

Here is the main listing:

```
1 ' Printer typefaces
2 ' G Yacomine
3 ' Amstrad Action   March 87
10 MEMORY &8FFF:FOR a=&9000 TO &922D:READ a$
20 b=b+VAL("&"+a$):POKE a,VAL("&"+a$)
30 POKE a,VAL("&"+a$):NEXT
40 IF b<>73204 THEN PRINT"ERROR IN DATA":STOP
50 PRINT"NEW COMMANDS INSTALLED":CALL &9000:END
60 DATA 01,0D,90,21,09,90,C3,D1,BC,00,00
70 DATA 00,00,51,90,C3,F0,90,C3,FF,90,C3
80 DATA 0E,91,C3,1C,91,C3,2A,91,C3,39,91
90 DATA C3,48,91,C3,55,91,C3,62,91,C3,71
100 DATA 91,C3,7F,91,C3,8E,91,C3,9C,91,C3
110 DATA AA,91,C3,B8,91,C3,C6,91,C3,D4,91
120 DATA C3,E2,91,C3,F0,91,C3,FF,91,C3,0E
130 DATA 92,C3,1D,92,4E,4C,51,4F,CE,4E,4C
140 DATA 51,4F,46,C6,4D,49,4E,49,4F,CE,4D
150 DATA 49,4E,49,4F,46,C6,50,52,4F,50,4F
160 DATA CE,50,52,4F,50,4F,46,C6,43,4F,4E
170 DATA 4F,CE,43,4F,4E,4F,46,C6,53,55,42
180 DATA 4F,CE,53,55,42,4F,46,C6,53,55,50
190 DATA 4F,CE,53,55,50,4F,46,C6,44,42,4C
200 DATA 4F,CE,44,42,4C,4F,46,C6,49,54,41
210 DATA 4C,4F,CE,49,54,41,4C,4F,46,C6,42
220 DATA 4F,4C,44,4F,CE,42,4F,4C,44,4F,46
230 DATA C6,55,4E,44,4F,CE,55,4E,44,4F,46
240 DATA C6,44,42,4C,57,4F,CE,44,42,4C,57
250 DATA 4F,46,C6,00,CD,2E,BD,38,FB,2A,EE
260 DATA 90,7E,FE,FF,28,06,CD,2B,BD,23,18
270 DATA F5,3E,0D,CD,2B,BD,C9,00,00,01,FB
280 DATA 90,ED,43,EE,90,CD,D5,90,C9,1B,78
290 DATA 01,FF,01,0A,91,ED,43,EE,90,CD,D5
300 DATA 90,C9,1B,78,00,FF,01,19,91,ED,43
310 DATA EE,90,CD,D5,90,C9,1B,4D,FF,01,27
320 DATA 91,ED,43,EE,90,CD,D5,90,C9,1B,4F
330 DATA FF,01,35,91,ED,43,EE,90,CD,D5,90
340 DATA C9,1B,70,01,FF,01,44,91,ED,43,EE
350 DATA 90,CD,D5,90,C9,1B,70,00,FF,01,53
360 DATA 91,ED,43,EE,90,CD,D5,90,C9,0F,FF
370 DATA 01,60,91,ED,43,EE,90,CD,D5,90,C9
380 DATA 12,FF,01,6D,91,ED,43,EE,90,CD,D5
390 DATA 90,C9,1B,53,01,FF,01,7C,91,ED,43
400 DATA EE,90,CD,D5,90,C9,1B,54,FF,01,8A
410 DATA 91,ED,43,EE,90,CD,D5,90,C9,1B,53
420 DATA 00,FF,01,99,91,ED,43,EE,90,CD,D5
430 DATA 90,C9,1B,54,FF,01,A7,91,ED,43,EE
440 DATA 90,CD,D5,90,C9,1B,47,FF,01,B5,91
450 DATA ED,43,EE,90,CD,D5,90,C9,1B,48,FF
460 DATA 01,C3,91,ED,43,EE,90,CD,D5,90,C9
470 DATA 1B,34,FF,01,D1,91,ED,43,EE,90,CD
480 DATA D5,90,C9,1B,35,FF,01,DF,91,ED,43
490 DATA EE,90,CD,D5,90,C9,1B,45,FF,01,ED
500 DATA 91,ED,43,EE,90,CD,D5,90,C9,1B,46
510 DATA FF,01,FB,91,ED,43,EE,90,CD,D5,90
520 DATA C9,1B,2D,01,FF,01,0A,92,ED,43,EE
530 DATA 90,CD,D5,90,C9,1B,2D,00,FF,01,19
540 DATA 92,ED,43,EE,90,CD,D5,90,C9,1B,57
550 DATA 01,FF,01,28,92,ED,43,EE,90,CD,D5
560 DATA 90,C9,1B,57,00,FF,00,00,00,00,00
```



Dotty

Tommy Daffin of South Brewham, Somerset, has provided you with an interesting type-in that creates 'dotty' designs. Using Q, A, O and P will move an ever-growing line around the screen. When your creativity has been exhausted press the spacebar and watch those dots move.

```
10 ' Dotty
20 ' Tommy Daffin
30 ' Amstrad Action   April 87
40 KEY 139,"CALL &BC02:mode 1"+CHR$(13)
50 MODE 0
60 GOSUB 310
70 MOVE 320,200
80 c=1
90 x=320:y=200
100 xx=0:yy=0
110 IF INKEY(67)<>-1 THEN yy=yy+0.25
120 IF INKEY(69)<>-1 THEN yy=yy-0.25
130 IF INKEY(27)<>-1 THEN xx=xx+0.25
140 IF INKEY(34)<>-1 THEN xx=xx-0.25
150 IF INKEY(47)<>-1 THEN GOSUB 230
160 IF INKEY(79)<>-1 THEN RUN
170 DRAW x,y,c
180 c=c+1:IF c=16 THEN c=1
190 IF x>640 OR x<0 THEN xx=-xx
200 IF y>400 OR y<0 THEN yy=-yy
210 x=x+xx:y=y+yy
220 GOTO 110
230 FOR f=0 TO 15:INK f,0:NEXT f
240 g=1
250 INK g,26
260 CALL &BD19
270 INK g,0
280 g=g+1:IF g=16 THEN g=1
290 IF INKEY(18)<>-1 THEN GOTO 310
300 GOTO 250
310 FOR f=0 TO 15
320 INK f,f
330 NEXT f
340 RETURN
```

Hangman

A faithful reproduction of an old favourite has been sent in by **Darren Clarke** of Sheldon, Birmingham. The listing may be long, but the game is still as enjoyable as ever, if not more so. If you want to alter the words the game uses, lines 890 to 950 are the place to do it. The words must not be longer than 18 characters, and there can be only 20 words at a time.

```
1 ' Hangman
2 ' by Darren Clarke
3 ' Amstrad Action   April 87
10 GOSUB 30:REM init
20 GOTO 190
30 REM *** INIT ***
40 DIM word$(20),letter$(18),a$(18)
50 MODE 0:BORDER 0:INK 0,0:PEN 13:t=0:length=0:wr=0:word=1
60 WINDOW #1,2,19,24,24:WINDOW #2,14,19,7,20:
   WINDOW #3,2,12,7,20
70 REM *** READ DATA ****
80 RESTORE 890
90 FOR num=1 TO 20
100 READ word$:L=LEN(word$)
110 IF L>18 THEN MODE 2:PRINT"Please take ";word$;
    " out of data..":END ELSE
120 word$(num)=word$:NEXT
130 REM *** RND WORD ***
140 IF rnum=20 THEN MODE 1:PRINT"That's the last
    of the words..":END ELSE
150 FOR n=1 TO RND*20+1
160 r=INT(RND*20)+1
170 IF word$(r)="*" OR word$(r)="" THEN NEXT:
    GOTO 150 ELSE 180
180 rnum=rnum+1:word$=word$(r):word$(r)="*":RETURN
190 REM *** SCREEN **
200 LOCATE 1,25:PEN 13:PRINT"HANGMAN BY DAZ/PAUL"
210 FOR x%=0 TO 224 STEP 2
220 FOR y%=0 TO 16 STEP 2
230 IF TEST(x%,y%) THEN PLOT 95+x%*2,355+y%*2,3:
    PLOT 95+x%*2,355+y%*2,13:PLOT 95+x%*2,357+y%*2,11:
    PLOT 99+x%*2,357+y%*2,13
240 NEXT:NEXT:LOCATE 1,25:PRINT SPC(19)
250 PLOT 89,392,3:DRAW 544,392:DRAWR 0,-78:
    DRAWR -455,0:DRAWR 0,78
260 LOCATE 10,4:PRINT"By":LOCATE 6,5:PRINT"DAZ & PAUL"
270 PLOT 410,304:DRAW 610,304:DRAWR 0,-226:
    DRAWR -200,0:DRAWR 0,226
280 PLOT 24,304:DRAW 390,304:DRAWR 0,-226:DRAWR -366,0:
    DRAWR 0,226
290 REM ** START **
300 word$=UPPER$(word$):length=LEN(word$)
310 LOCATE 10-LEN(word$)/2,22:PRINT STRING$(length,"-")
320 FOR t=1 TO length
330 a$(t)=LEFT$(word$,t):NEXT
340 FOR t=length TO 1 STEP-1
350 letter$(t)=RIGHT$(a$(t),1):NEXT
360 IF wr=LEN(word$) THEN wr=0 ELSE 500
370 GOTO 810
380 IF wrong=13 THEN 390 ELSE 500
390 REM *** DEATH ROUTINE ***
400 FOR s=1 TO 2:RESTORE 480
410 FOR r=1 TO 11:READ d,n
420 SOUND 1,n,d,7:SOUND 5,0,3,0:NEXT:NEXT
430 FOR n=1 TO length
440 IF letter$(n)<>"*" THEN GOSUB 460
450 NEXT:GOTO 810
460 LOCATE 10-LEN(word$)/2+n-1,22
470 PEN 3:PRINT letter$(n):PEN 13:RETURN
480 DATA 50,1016,37,1016,12,1016,50,1016,25,850,25,
    899,25,899,25,1016,25,1016,25,1136,100,1016
490 REM *** INPUT LETTER/WORD ***
500 wr$="":INPUT#1,"",LETTER$
510 LETTER$=UPPER$(LETTER$)
520 IF letter$=word$ THEN 530 ELSE 560
530 FOR n=1 TO LEN(word$):LOCATE 10-LEN(word$)/2+n-1,22
540 PRINT MID$(word$,n,1):FOR del=1 TO 130:NEXT:NEXT
550 wr=LEN(word$):GOTO 360
560 t=0:length=LEN(word$)
570 t=t+1:IF t=length+1 THEN 620
580 IF letter$=letter$(t) THEN GOTO 590 ELSE 570
590 LOCATE 10-LEN(word$)/2+t-1,22:PRINT letter$(t)
600 FOR del=1 TO 300:NEXT
610 letter$(t)="*":WR=WR+1:wr$="YES":GOTO 570
620 REM *** PRINT LETTERS USED ***
630 PRINT#2,letter$" ";
640 REM *** HANGMAN ***
```

Chimes

Last month you had budgie noises from your Amstrad. This month you are treated to the chimes of a grandfather clock, courtesy of **Dave Thomas** of Bridgend in Mid-Glamorgan.

```
1 ' CHIMES
2 ' by Dave Thomas
3 ' Amstrad Action   April 87
10 CLS:PRINT"What time is it?";
20 INPUT a
30 FOR i=1 TO a
40 ENV 1,50,15,30
50 SOUND 1,478,425,1,1
60 SOUND 2,239,425,1,1
70 SOUND 4,119,425,1,1
80 SOUND 1,0,50
90 SOUND 2,0,50
100 SOUND 4,0,50
110 NEXT i:GOTO 10
```



```
650 IF wr$="YES" THEN GOTO 360 ELSE
660 wrong=wrong+1
670 IF wrong=1 THEN 730 ELSE IF wrong=6 THEN 750 ELSE
680 RESTORE 770
690 READ bpart,px,py,x,y
700 IF bpart=wrong THEN 710 ELSE 690
710 PLOT px,py,13:DRAW x,y
720 IF wrong=13 THEN 390 ELSE 360
730 PLOT 160,80,1:DRAW 160,100:DRAWR 20,0:DRAWR 0,20:
    DRAWR 20,0
740 DRAWR 0,20:DRAWR 150,0:DRAWR 0,-60:GOTO 360
750 PLOT 108,274:DRAW 138,274:DRAWR 0,-26:DRAWR -34,0:
    DRAWR 0,26
760 PLOT 112,266:PLOT 128,266:PLOT 116,254:
    DRAW 124,254:GOTO 360
770 DATA 2,300,140,300,296,3,120,296,
    300,296,4,260,296,300,246
780 DATA 5,120,296,120,276,7,120,248,
    120,180,8,120,248,100,180
790 DATA 9,120,248,140,180,10,120,180,
    100,110,11,120,180,140,110
800 DATA 12,90,110,100,110,13,140,110,154,110
810 REM *** PLAY AGAIN ? ***
820 PRINT#1,"Play Again (Y/N)?"
830 y$=INKEY$:y$=UPPER$(y$):IF y$="" THEN 830
840 IF y$="Y" THEN 850 ELSE IF y$="N" THEN CLS:
    END ELSE 830
850 wrong=0:wr$="":wr=0
860 CLS#1:CLS#2:CLS#3:LOCATE 10-LEN(word$)/2,22
870 PRINT SPC(length):GOSUB 130:GOTO 290
880 REM *** DATA ****
890 DATA abbreviation,sisterhood,blackpool
900 DATA cigarette,rabbit,neighbourhood
910 DATA snooker,football,tennis
920 DATA dictionary,rugby
930 DATA computer,adventure,arcade
940 DATA television,brother,animal
950 DATA lioness,elephant,electronic
```

Rectangle

Have you ever wished to display rectangles of any shape or size on the screen – rapidly? If so then **A Knife** of Romford, Essex, has sent in the required goods.

When you run the program, there will be a new command available: |RECT,a,b,c,d,e, where a and b are the origin or rather the coordinates of the bottom left of the rectangle, c is the width of the rectangle, d is its length, and e selects the colour.

```
1 ' Rectangle
2 ' A Knife
3 ' Amstrad Action   March 87
10 lintot=0:address=39000:FOR lin=1 TO 12
20 FOR dat=1 TO 10:READ a$:a=VAL("&"+a$)
30 lintot=lintot+a:POKE address,a
40 address=address+1:NEXT:READ check
50 IF lintot<>check THEN PRINT "Error in line ";
   lin*10+170:END
60 lintot=0:NEXT:CALL 39000
70 PRINT"NEW COMMAND |RECT,a,b,c,d,e INSTALLED"
80 DATA 01,62,98,21,d0,98,cd,d1,bc,c9,1447
90 DATA 67,98,c3,6c,98,52,45,43,d4,04,1144
100 DATA cd,ae,98,cc,c9,bb,cd,c9,98,cd,1887
110 DATA ae,98,cd,bb,98,11,00,00,60,69,1088
120 DATA cd,f6,bb,cd,ae,98,cd,c2,98,50,1800
130 DATA 59,cd,bb,98,60,69,cd,f6,bb,cd,1677
140 DATA ae,98,cc,c2,98,21,00,00,50,59,1079
150 DATA cd,f6,bb,cd,bb,98,21,00,00,11,1232
160 DATA 00,00,cd,f6,bb,c9,dd,66,07,dd,1390
170 DATA 6e,06,dd,56,09,dd,5e,08,c9,dd,1177
180 DATA 46,03,dd,4e,02,c9,dd,46,05,dd,1092
190 DATA 4e,04,c9,dd,7e,00,cd,de,bb,c9,1445
```



Patterns Mk II

David Brown of Sutton, West Midlands, has supplied you with an impressive pattern-producing program. There have been many such routines in the past – this one is rather exceptional. The patterns or designs are varied, complex and pleasant to view. Pressing the spacebar at any time will start a new pattern into life. This program will work only on the 664 or 6128.

```
1 ' Patterns Mk II
2 ' by David Brown
3 ' Amstrad Action   April 87
10 '
20 MODE 2:INK 0,0:INK 1,11:PAPER 0:PEN 1:BORDER 0
30 CLS
40 LOCATE 15,15:PRINT "PRESS ANY KEY TO GO ONTO NEXT PATTERN"
50 IF INKEY$="" THEN 50
60 CLS:S=3+INT(RND*12)
70 FOR Z=1 TO 2
80 P(Z,1)=INT(RND*641):P(Z,2)=INT(RND*401)
90 D(Z)=1+INT(RND*4)
100 NEXT
110 WHILE INKEY$=""
120 PLOT P(1,1),P(1,2)
130 DRAWR P(2,1)-P(1,1),P(2,2)-P(1,2),1,1
140 FOR Z=1 TO 2
150 P(Z,1)=P(Z,1)-S*(D(Z)=1 OR D(Z)=2)+S*(D(Z)=3 OR D(Z)=4)
160 P(Z,2)=P(Z,2)-S*(D(Z)=1 OR D(Z)=4)+S*(D(Z)=2 OR D(Z)=3)
170 IF P(Z,1)>640 THEN P(Z,1)=P(Z,1)-2*S:D(Z)=D(Z)+3+2*(D(Z)=2)
180 IF P(Z,1)<0 THEN P(Z,1)=P(Z,1)+2*S:D(Z)=D(Z)-1+2*(D(Z)=4)
190 IF P(Z,2)>400 THEN P(Z,2)=P(Z,2)-2*S:D(Z)=D(Z)+1+2*(D(Z)=4)
200 IF P(Z,2)<0 THEN P(Z,2)=P(Z,2)+2*S:D(Z)=D(Z)+1+2*(D(Z)=2)
210 NEXT Z
220 WEND
230 GOTO 60
```

Character definer

Before you turn the page in disgust at this mammoth listing, let me just say this finger-wearing program is is well worth typing in.The character definer sent in by **James Cadwallader** of Gosport, Hants, is one of the classiest you will see. Its ease of use and functions will shame many that have gone before.

Characters from 32 (the space) upwards can be defined. When run the program displays a box with several characters. One of them is highlighted, and in the neighbouring box is its Ascii code. With the cursor keys you can scroll backwards or forwards through the character set.

Once you reach the character you want to redefine, press Enter or Return. A list of options will appear: `C` to continue, `R` to re-select, `S` to save and `L` to load. Pressing `C` draws the highlighted character in a large grid box on the top left of the screen.

Using a combination of spacebar, Delete and cursor keys, you can now design a new character. As you fill or delete squares, the character will be displayed in mode-0 and mode-2 characters below the grid. Pressing Clear will wipe the grid to let you restart your design.

After finishing your character, press Tab to choose another character to design. Or you can load or save a complete character set.

```
1 ' Character definer
2 ' by James Cadwallader
3 ' Amstrad Action   April 87
10 ON ERROR GOTO 1700
20 SYMBOL AFTER 256
30 oldmem=HIMEM
40 SYMBOL AFTER 32
50 newmem=HIMEM
60 clr$=CHR$(22)+CHR$(1):opq$=CHR$(22)+CHR$(0)
70 a%=65:i$="*"
80 DIM c%(7,7),d%(7),e%(7,7)
90 INK 0,13:INK 1,1:INK 2,18:INK 3,23
```

Guidelines for Type-in authors

Anything from £10 to £100 could be yours if your type-in is selected to appear in these pages. Remember it must be your own original work. The address: Type-ins, *Amstrad Action*, Somerton, Somerset, TA11 7PY.

If you plan to send a listing to be considered for publication, here are a few pointers:

▶ Use lower-case rather than capitals for variable names. Keep them short but meaningful.

▶ Do not use letters that look like numbers as variable names: lower-case L (l), capital I or either O. Even B can look like 8 on some printers.

▶ REM statements make the program easier to understand – especially when you rediscover it on tape six months later. Put program name, source and date at the top. REM every subroutine to outline its purpose.

▶ Structure your programs – divide them into sensible procedures.

▶ Avoid long multi-statement lines. Short lines make debugging easier.

▶ Try to keep lines short enough to fit our columns without confusing wrap-arounds.

▶ And *please* make sure your name and address (in human-readable form) is on every single piece, especially the label of the cassette or disk. Keep a copy.

```
100 MODE 1:fin%=0:gf%=0
110 GOSUB 800
120 LOCATE 15,2:PEN 2:PRINT "[";
130 PEN 3:PRINT "TAB";
140 PEN 2:PRINT "]";
150 PEN 1:PRINT " to go on."
160 LOCATE 15,4:PEN 2:PRINT "[";
170 PEN 3:PRINT "CLR";
180 PEN 2:PRINT "]";
190 PEN 1:PRINT " to clear grid."
200 LOCATE 15,6:PEN 2:PRINT "[";
210 PEN 3:PRINT "COPY";
220 PEN 2:PRINT "]";
230 PEN 1:PRINT " to toggle guide."
240 LOCATE 1,14
250 PEN 2
260 PRINT " Select character : ";
270 MOVE 318,192:DRAWR 114,0,1:DRAWR 0,-18
280 DRAWR -114,0:DRAWR 0,18
290 MOVER 128,0:DRAWR 50,0:DRAWR 0,-18
300 DRAWR -50,0:DRAWR 0,18
310 LOCATE 21,14
320 WHILE i$<>CHR$(13)
330 GOSUB 1760
340 i$=INKEY$
350 IF i$=CHR$(243) THEN a%=a%+1
360 IF i$=CHR$(242) THEN a%=a%-1
370 IF a%<32 THEN a%=255 ELSE IF a%>255 THEN a%=32
380 WEND
390 x%=0:y%=0
400 PEN 1
410 LOCATE 5,17:PRINT " PRESS (";
420 PEN 3:PRINT "r";
430 PEN 1:PRINT ") TO RE-SELECT, (";
440 PEN 3:PRINT "c";
450 PEN 1:PRINT ") TO"
460 LOCATE 7,19:PRINT "CONTINUE , (";
470 PEN 3:PRINT "s";
480 PEN 1:PRINT ")";
490 PRINT " TO SAVE OR"
500 LOCATE 9,21:PRINT "(";
510 PEN 3:PRINT "l";
520 PEN 1:PRINT ") TO LOAD."
530 WHILE i$<>"c"
540 i$=INKEY$
550 k$=LOWER$(i$)
560 IF k$="r" THEN 100
570 IF k$="s" THEN f%=0:GOSUB 1220:GOTO 100
580 IF k$="l" THEN f%=1:GOSUB 1220:GOTO 100
590 WEND
600 GOSUB 1500
610 WHILE fin%=0
620 GOSUB 960
630 k$=INKEY$:IF k$="" THEN 630
640 IF k$=CHR$(9) THEN GOSUB 1160:fin%=1
650 GOSUB 920
660 IF k$=CHR$(242) THEN x%=x%-1
670 IF k$=CHR$(243) THEN x%=x%+1
680 IF k$=CHR$(241) THEN y%=y%+1
690 IF k$=CHR$(240) THEN y%=y%-1
700 IF x%>7 THEN x%=0 ELSE IF x%<0 THEN x%=7
710 IF y%>7 THEN y%=0 ELSE IF y%<0 THEN y%=7
720 IF INKEY(47)=0 THEN GOSUB 1050
730 IF INKEY(79)=0 THEN GOSUB 1110
740 IF INKEY(16)=0 THEN GOSUB 1620
750 IF INKEY(9)=0 THEN GOSUB 1500
760 GOSUB 1000
770 WEND
780 ERASE c%,e%:ERASE d%:GOTO 100
790 END
800 REM SET UP SCREEN
810 BORDER 13
820 MOVE 14,384:DRAWR 130,0,1
830 DRAWR 0,-130:DRAWR -130,0
840 DRAWR 0,130
850 MOVE 94,240:DRAWR 18,0,1
860 DRAWR 0,-18:DRAWR -18,0
870 DRAWR 0,18
880 MOVE 46,240:DRAWR 34,0
890 DRAWR 0,-18:DRAWR -34,0
900 DRAWR 0,18
910 RETURN
920 LOCATE x%+2,y%+2:PEN 1
930 IF c%(x%,y%)=1 THEN PAPER 3:PRINT " "; ELSE IF
    e%(x%,y%)=1 THEN PAPER 1:PRINT " "; ELSE PAPER 0:
    PRINT " "
```

```
940 PAPER 0
950 RETURN
960 IF c%(x%,y%)=1 THEN PRINT clr$;:PEN 1 ELSE IF
    e%(x%,y%)=1 THEN PEN 2:PRINT clr$;
970 LOCATE x%+2,y%+2:PRINT "+"
980 PRINT opq$;
990 RETURN
1000 REM CHARACTERS
1010 IF c%(x%,y%)=1 THEN PLOT -10,-10,3 ELSE
     PLOT -10,-10,0
1020 PLOT 48+x%*4,238-y%*2:PLOTR 2,0
1030 PLOT 96+x%*2,238-y%*2
1040 RETURN
1050 REM SPACE PRESSED
1060 PAPER 3
1070 c%(x%,y%)=1
1080 LOCATE x%+2,y%+2:PRINT " "
1090 PAPER 0
1100 RETURN
1110 REM DELETE PRESSED
1120 IF c%(x%,y%)=1 AND e%(x%,y%)=0 THEN PAPER 0:
     LOCATE x%+2,y%+2:PRINT " " ELSE IF e%(x%,y%)=1
     THEN PAPER 1:LOCATE x%+2,y%+2:PRINT " "
1130 c%(x%,y%)=0
1140 PAPER 0
1150 RETURN
1160 REM PROGRAM CHARACTER
1170 DEF FNbin=c%(0,i%)*128+c%(1,i%)*64+c%(2,i%)
     *32+c%(3,i%)*16+c%(4,i%)*8+c%(5,i%)*4+c%
     (6,i%)*2+c%(7,i%)
1180 FOR i%=0 TO 7:d%(i%)=FNbin
1190 NEXT
1200 SYMBOL a%,d%(0),d%(1),d%(2),d%(3),d%(4),d%(5),
     d%(6),d%(7)
1210 RETURN
1220 REM SAVE / LOAD
1230 CLS:LOCATE 17,2
1240 IF f%=0 THEN PRINT "SAVE." ELSE PRINT "LOAD."
1250 PEN 3
1260 PRINT STRING$(40,"_");
1270 LOCATE 1,23
1280 PRINT STRING$(40,"_");
1290 LOCATE 3,7:PRINT SPC(38);STRING$(38,8);
1300 PEN 2
1310 INPUT " Filename :",flnm$
1320 IF LEN(flnm$)>8 THEN PEN 3:PRINT:PRINT " Too long!":
     GOTO 1290
1330 IF LOWER$(RIGHT$(flnm$,4))<>".chr" THEN
     flnm$=flnm$+".chr"
1340 IF f%=0 THEN SAVE flnm$,b,newmem,oldmem-newmem
     ELSE IF f%=1 THEN LOAD flnm$
1350 SOUND 1,15,5,15
1360 PEN 1
1370 IF ef%=0 AND f%=0 THEN PRINT:PRINT "  Saved :";
     ELSE IF ef%=0 AND f%=1 THEN PRINT:PRINT "  Loaded :";
1380 IF ef%=0 THEN PEN 3:PRINT UPPER$(flnm$):PRINT
1390 PEN 2
1400 IF ef%=0 AND f%=0 THEN PRINT " Remember to use ";:
     PEN 1:PRINT "SYMBOL AFTER 32 ";:PEN 2:PRINT USING
     "&";"before  ";:PEN 1:PRINT "LOAD";:PEN 2:PRINT
     "ing ";UPPER$(flnm$);" from your program."
1410 PEN 1
1420 LOCATE 7,20
1430 PEN 2:PRINT "    [";
1440 PEN 3:PRINT "ANY KEY";
1450 PEN 2:PRINT "]";
1460 PEN 1:PRINT " to continue."
1470 IF INKEY$="" THEN 1470
1480 f%=0:ef%=0
1490 RETURN
1500 REM PRINT CHARACTER MATRIX
1510 xc%=2:yc%=2:gf%=gf% XOR 1
1520 FOR yp%=190 TO 176 STEP -2
1530 FOR xp%=368 TO 382 STEP 2
1540 IF TEST(xp%,yp%)=2 AND c%(xc%-2,yc%-2)<>1 THEN
     LOCATE xc%,yc%:PAPER gf%:PRINT " ";
1550 IF TEST(xp%,yp%)=2 THEN e%(xc%-2,yc%-2)=gf%
1560 xc%=xc%+1
1570 IF xc%>9 THEN xc%=2:yc%=yc%+1
1580 NEXT
1590 NEXT
1600 PAPER 0
1610 RETURN
1620 REM CLEAR GRID
1630 ERASE c%,e%:ERASE d%
1640 FOR r%=2 TO 9
1650 LOCATE 2,r%:PRINT STRING$(8,32);
1660 NEXT
1670 LOCATE 4,11:PRINT "  ";
1680 LOCATE 7,11:PRINT " ";
1690 RETURN
1700 REM ERROR
1710 ' Clearing the grid twice in succession will cause
1720 ' the computer to try and ERASE arrays twice!
1730 IF ERR=32 THEN ef%=1 ' if filing error
     don't print SAVED/LOADED etc.
1740 RESUME NEXT
1750 RETURN
1760 LOCATE 21,14
1770 FOR i%=a%-3 TO a%+3
1780 j%=i%
1790 IF j%<32 THEN j%=j%+224 ELSE IF j%>255
     THEN j%=j%-224
1800 IF j%=a% THEN PAPER 1:PEN 2 ELSE PEN 3:PAPER 0
1810 PRINT CHR$(j%);
1820 NEXT
1830 a$=MID$(STR$(a%),2)
1840 LOCATE 29,14:IF a%<100 THEN PRINT "0";
1850 PRINT a$;
1860 RETURN
```

3D shape rotator

As the title suggests, this listing from **Simon Watson** in Cornwall will rotate three-dimensional shapes. You must enter the number of sides the shape is to have. The program will draw it and then proceed to rotate it.

Once rotation has started, these keys will affect the shape: Fast, Medium, Slow rotation speed; Direction change; Ink colour; Reveal all 15 frames of animation.

```
1 ' 3D shape rotator
2 ' by Simon Watson
3 ' Amstrad Action   April 87
10 BORDER 0:INK 1,26:INK 0,0:BORDER 0:PEN 1:MODE 2
20 INPUT"Number of sides (5-10 works best)";side%:
   side%=side%-2
30 DIM col%(15):FOR n%=1 TO 15:READ col%(n%):NEXT
40 DATA 26,6,3,15,12,10,21,22,11,1,4,7,5,16,13
50 ' draw out all 15 frames
60 MODE 0:FOR a%=1 TO 2
70 IF a%=1 THEN ORIGIN 200,200 ELSE ORIGIN 440,200
80 FOR b%=1 TO 15:INK b%,0:c=b%*PI*2/(side%*15)
90 MOVE 150*COS(c),150*SIN(c)
100 FOR d%=1 TO side%:e=d%*2*PI/side%
110 DRAW 150*COS(e+c),150*SIN(e+c),b%
120 IF a%=1 THEN DRAWR 240,0:DRAWR -240,0
130 NEXT:NEXT:NEXT:f%=0:dir%=1:i%=7:rate%=50
140 ' rotate shape
150 f%=f%+dir%
160 IF f%=0 THEN f%=15
170 IF f%=16 THEN f%=1
180 IF i%=16 THEN i%=1
190 INK f%,col%(i%):i$=UPPER$(INKEY$):FOR delay%=1
    TO rate%:NEXT
200 IF i$="F" THEN rate%=10
210 IF i$="M" THEN rate%=50
220 IF i$="S" THEN rate%=100
230 IF i$="D" THEN dir%=-dir%
240 IF i$="I" THEN i%=i%+1
250 IF i$="R" THEN FOR n%=1 TO 15:INK n%,i%:NEXT
260 INK f%,0:GOTO 150
```

PROBLEM ATTIC



Our expert solves your problems with Arnold –

Load and save from machine-code

I have a 664 and am currently writing a machine-code adventure game which uses the disk drive to load and save data.

My problem is that I can find no technical information referring to the operation of the disk drive under machine-code. I have searched for a book which will tell me how to load and save programs to disk, but apparently none exist.

Can you please tell me the necessary system calls and parameters that must be supplied? While on the subject, is it possible to override the "Retry, Ignore or Cancel?" message?

Simon Davidson
Morpeth, Northumberland

Amsoft produces a wonderful publication, CPC 464-664-6128 Firmware Guide, *at £19.95. (Their stock code is Soft 968.) This contains not only information on loading and saving programs but details every firmware routine and other useful topics.*

However, while you're waiting for it to arrive, an example of loading and saving in the form of a assembly-language listing:

```
Save file:
ORG &8000
LD B,12         ;len of filename
LD HL,NAME      ;loc of filename
LD DE,&9000     ;loc of 2k buffer
CALL &BC8C      ;open output file
LD HL,&4000     ;start of file
LD DE,&2000     ;length of file
LD BC,&4050     ;exec address
LD A,2          ;file type
CALL &BC98      ;save file NAME
CALL &BC8F      ;close file
RET
NAME
DEFB 'FILENAME.BIN'
```

```
Load file:
ORG &8000
LD B,12
LD HL,NAME
LD DE,&9000
CALL &BC77      ;open file
LD HL,&4000     ;load addr
CALL &BC83      ;load file
CALL &BC7A      ;close file
RET

DEFB 'FILENAME.BIN'
```

There are two methods open to you if you wish to disable the "Retry" message. One is legal and involves calling a rom routine – the other is handy little trick to know. To switch off the error message using the published rom call (also included in the Firmware Guide*):*

```
ORG &8000
LD HL,ERR_MESS       ;points to rom-routine number
CALL &BCD4           ;find command
LD (ERR_MESS1),HL    ;save routine location
LD A,C
LD (ROM_NUM),A       ;save rom number
LD A,&FF             ;A contains &FF for off and 0 for on
RST 3,ERR_MESS1
RET
ERR_MESS
DEFB &81
ERR_MESS1
DEFW 0
ROM_NUM
DEFB 0
```

The second method for controlling the error-message status is to poke a certain memory location:
POKE &BE78,&00 – *on*
POKE &BE78,&FF – *off*

Joystick dilemma

Is it possible to buy an adapter allowing me to plug in two joysticks without having to purchase the Amstrad JY1/2? What in your opinion is the most robust, hard-wearing and reasonable joystick available?

Matthew Richardson
Twickenham, Middlesex

Lightwave Leisure (051-639 5050) sells an adapter to suit your needs – the Joystick Interface Cable, £11.55.

As for which joystick: in issue 18 Bob tested several new ones and threw in an old favourite. He concluded with the Speed King from Konix (£12.95) still top of the list. Chris Boothman agrees. I tend to reach for the Phasor One by Britannia (£12.95). Jim, on the other hand – both hands – uses the keyboard.

Bar commands are a problem

I recently purchased a copy of your magazine, having received a present of a CPC 464. Reading the type-ins section I noticed several references to RSX (resident system extension) commands.

I visited several local bookshops in an effort to obtain a publication dealing with RSXs and other aspects of the CPC such as rom routines, system variables and so on – no joy. I subsequently wrote to Amsoft which publishes the Complete Firmware guide – still no reply.

Can you recommend relatively inexpensive publications dealing with the RSX commands?

G Body
Redhill, Surrey

Amsoft can be contacted on (0277) 22 8888 – what you need is Soft 968 (see the reply to "Loading and Saving from Machine-Code"). Other useful publications are Amstrad Advanced Users Guide, *published by Glentop at £8.50, ISBN 1 85181 018 8;* Advanced Amstrad Basic *from Melbourne House, £12.95, ISBN 0 86161 202 7. A slightly more expensive hardback book is* The Anatomy of the CPCs *from First Publishing at £14.95, ISBN 0948015 462.*

While you search for the books here is quick rundown on how to introduce an RSX to the system:

The HL register must point to a four-byte workspace; BC contains the address of the RSX table. A call to location &BCD1 will introduce the new command to the firmware. To demonstrate this idea, the example below sets up the command |BELL *to cause Arnold to emit a beep.*

```
ORG &9000
LD HL, work_space
LD BC, rsx_table
CALL &BCD1
RET
work_space
DEFS 4
rsx_table
DEFW name_table
JP bell
name_table
DEFB 'BEL', 'L'+&80
DEFB 0
bell
LD A, 7
CALL &BB5A
RET
```



PROBLEM ATTIC

– nothing is too simple or complex for RpM

Loading without running

Can you tell me if there is a way to load binary files into memory, without running them, if they are located at addresses below 4500? *Laser Genius* can do it, but runs short on memory space for particularly long files.

Rod Dunlop
Pollokshields, Glasgow

As Basic requires memory for itself it gets rather fussy when you try to load a file below 4500 decimal: usually spitting out the message "Memory full". The routine below overcomes these problems, allowing you to load any file at any memory location. It is a mixture of Basic and machine-code. The Basic asks you to input the filename and location address. The machine-code does the actual loading and is located at &BF00.

```
10 GOSUB 100
20 MODE 2:INPUT"FILENAME ? ",name$
30 INPUT"LOAD ADDRESS ? ",addr
40 x=addr MOD &100:POKE &BF0E,x
50 y=addr\&100:POKE &BF0F,y
60 a=LEN(name$):POKE &BF01,a
70 FOR b=1 TO a:b$=MID$(name$,b,1)
80 POKE &BF21+b,ASC(b$):NEXT
90 CALL &BF00:END
100 FOR t=&BF00 TO &BF21:READ a$
110 POKE t,VAL("&"+a$):NEXT
120 RETURN
130 DATA 06,04,11,00,c0,21,22,bf,cd
140 DATA 77,bc,28,10,21,00,70,77,23
150 DATA cd,80,bc,38,f9,28,04,fe,0f
160 DATA 20,f3,cd,7a,bc,37,c9
```

Missing address marks?

I am a raw beginner. I purchased *Mini Office II* from you and although it appears to function, verification shows 'Sector errors' and missing address marks. As I have not exploited the program to the full, for example, not using the printer or graphics options, I wonder if these errors are sufficient to affect the full use of this program. Should I return it?

TJ Free
Perrystown, Dublin

No, there is no need to return Mini Office II. *If you try verifying most commercial games – even cetain serious software – this type of error will be commonplace. The reason: to prevent piracy. The software house will protect a disk, usually by formatting the disk in such a way that the standard operating system is incapable of reading it – clever programming gets round this.*

Type mismatch

Why does my Amstrad always give a "Type mismatch" message when it encounters a line similar to the following:

```
130 READ p$:p1=VAL("&"+a$)
```

I have spent hours typing in programs with such lines only to find them thrown back at me. Is there any way of getting round this problem?

HS Aziz
Stortford, Herts

Don't believe the computer when it says the error is in a line such as the one above. There is nothing wrong with the line – the error is (usually) in data statements elsewhere in the listing.

In the case you have shown, an error will occur when the program tries to read data that is not a string of numbers or letters between A and F: the function VAL can be used only with numbers – whether decimal, hexadecimal or binary. Decimal numbers lie between 0 an 9; hex numbers range from 0 to 9 and then A to F; binary consists only of ones and zeros.

I suggest you look through your data statements: it is very easy to type a capital O rather than a 0 or even a fullstop rather than a comma.

Azerty please

I have written a short Basic program that alters the CPC's qwerty keyboard into an azerty keyboard – here in Belgium it's what we are used to. Unfortunately when I boot CPM both the program and the redefined keyboard vanish. Is it possible to change the qwerty to azerty under CPM?

The keys to change, in normal, shift and control order:

QWERTY	AZERTY
aA	qQ
qQ	aA
zZ	wW
wW	zZ
mM	:*
:*	mM

Alfons Kerremans
Willebroek, Belgium

When you boot CPM it completely clears memory, colours, key definitions and so on. However, not all is lost as it is possible to have your keyboard set to your requirements under CPM:

Ensure that you have the files SUBMIT.COM and SETKEYS.COM included on your CPM workdisk. These can be copied by booting your system disk and typing `PIP B:=A:submit.com` *at the* `A>` *prompt (do the same for setkeys.com). You will then need to create two Ascii files – one contains data concerning the new key definitions and the other is PROFILE.SUB; this will automatically execute when you boot up CPM.*

The Basic program below creates the two files in question. Make sure that your workdisk is in the drive, for when the program runs it writes the files.

```
10 INPUT "Filename ";a$
20 OPENOUT a$
30 WHILE b$<>" ":READ b$
40 PRINT #9,b$:WEND
50 CLOSEOUT
60 OPENOUT"PROFILE.SUB"
70 PRINT#9, "setkeys "+a$
80 CLOSEOUT:END
90 DATA 67 N "↑'97'"
100 DATA 67 S "↑'65'"
110 DATA 69 N "↑'113'"
120 DATA 69 S "↑'81'"
130 DATA 71 N "↑'119'"
140 DATA 71 S "↑'87'"
150 DATA 59 N "↑'122'"
160 DATA 59 S "↑'90'"
170 DATA 38 N "↑'58'"
180 DATA 38 S "↑'42'"
190 DATA 29 N "↑'109'"
200 DATA 29 S "↑'77'"
210 DATA " "
```

Each data statement contains information necessary to redefine the keys for an azerty keyboard. The first number refers to the key number (6128 owners will find this list printed on the casing of their drives – alternatively it's in the user manual). Next comes the key state: N=normal, S=shift, C=control. The items in single quotes tell SETKEYS the character that should be printed – the quotes and caret are used by the system. For example '65' is the Ascii number for A.

HOT TIPS

This month we really do have the recipe for surgery on your Quickshot! Also a boon for *Tasword*ers and quite a few curiosities.

Resolving the Quickshot problem

The problem Roy Williams (Reaction 16) is having with his Quickshot 2 Turbo – make that Quickshort – also occurs with the Quickshot 2+. This can be remedied by opening up the base of the joystick and disconnecting one of the spade connectors (the red one) from the side of the printed circuit board. This will also let the autofire option work properly (unlike the standard Quickshot 2).

Both Fire buttons should work as Fire 1. If you now open up the stem part of the joystick, the removed wire can be lengthened and swapped for one of the wires attached to one of the micro-switches: this will allow the use of both Fire buttons – one will be Fire 1, the other Fire 2.

C S Barnes
Bangor, N Ireland

Turbo

Here's a quick way of setting a turbo save speed for cassette users (464 only):

```
CALL &BFF0,&BC,&68C3,&53E,&5F,&2100
```

Seg Gorham
Wakefield, West Yorkshire

Customised Tasword

Here is a hint for users of *Tasword 6128* to make customised loaders for the main program. Edit line 160 of the Basic loader to read:

```
160 CALL t+54 : GOSUB 20 : MEMORY L-1:
    POKE 6629, left margin:
    POKE 6630, right margin:
    POKE 6598, page length:
    CALL t : CLOSEIN : MEMORY t-1:
    IF PEEK(t)=195 THEN STOP
```

A number of loaders can be set up and saved as A4, A5, etc. I find it much quicker to `RUN "a5"` to set up for A5 paper with 50 lines than to run *Tasword*, then press Control, Return, C, Y, 60, Return, Return...

DJ Saunders
Basildon, Essex

And £20 is bound for Basildon with thanks from Tasword typists for the hottest tip of the month.

Re-direct

There have been countless programs to redirect the screen output to the printer. I thought it would make a nice change to redirect anything for the printer to the screen. Well, it's different!

```
1 ' Redirect
2 ' Stephen Gennard
3 ' Amstrad Action
10 IF INP(&F500) AND 64 THEN PRINT"Printer not on-line":END
20 POKE &BDF1,&C3:POKE &BDF2,0: POKE &BDF3,&BE
30 READ num
40 FOR t=&BE00 TO &BE00+num-1
50 READ byte$
60 POKE t,VAL("&"+byte$):NEXT t
70 DATA 06,CD,5A,BB,0E,01,C9
80 LIST #8
```

Stephen Gennard
Barnsley, Yorkshire

Weird

This short routine will stun and amaze you. It will puzzle you up to the eyeballs. Some of the effects are border flash, randomly defined windows, vertical printing, stippling effects.

```
1 ' WEIRD
2 ' by Adrian Sill
20 CLS:FOR a=1 TO 5000
30 a=RND*255
40 SYMBOL AFTER 0
50 SYMBOL a,a,a,a,a,a,a,a,a
60 PRINT CHR$(a);
70 NEXT
```

Adrian Sill
Doncaster, South Yorkshire

Frightening Fastform

I have discovered an error in the *Fastform* program included on the Christmas cassette: The BIGK format gives 207k free only if all 42 tracks are of that format: 5k per track, 2k for the disk menu and 1k for the NORM.BIN program. Total that up: 42*5 - 2 - 1 = 207. The program needs to reformat the first track to Data format to make it usable by a CPC machine, so there is in fact 202k (207–5) available to the user. As a result of the programming, the computer thinks it has the full 207k free for it to use and voices its 'missing k' complaint with a loud clanking noise (which, I have to admit, frightened the life out of me). The way to resolve the problem is:

1. Type in the following – do not Run:

```
10 FOR t=0 to 1:POKE &A8A8+dr,&FF:POKE
   &A890+dr,&28:POKE &A895+dr,&CC:POKE
   &A89D+dr,1:POKE &A89F+dr,&30:POKE
   &A8A0+dr,&A:POKE &A8A2+dr,&32:POKE
   &A8A3+dr,&E5:POKE &A8A1+dr,&20:
   dr=&40:next
```

2. Insert disk with the *Fastform* program into drive and type, in direct mode:

```
MEMORY &6FFF:LOAD"KSAVER",&7000
```

3. Now type:

```
SAVE"SCRATCH",B,&170,&150
LOAD"SCRATCH",&7000
SAVE"KSAVER",B,&7000,&300
```

4. Finally erase the unwanted files:

```
a$="*.BAK":|ERA,@a$
b$="SCRATCH.BIN":|ERA,@b$
```

This will alter the formatting program so that the error will not occur. If the conversion program on December page 21 is used, the `POKE &A895+dr,&D0` needs to be changed to `POKE &A895+dr,&CC`.

Robert Brooks
Sherborne Road, Yeovil

Whoops!

More minus signs

Gavin Manning wrote in to Problem Attic 17 stating that his Amstrad crashes when typing in the line below with 100 minus signs where the dots are:

```
PRINT 365-(-...-5)
```

I have found if you are in mode 0 and you use ? rather than PRINT followed by one space, when using 246 minus signs the cassette motor starts up. Also trying his line with 38 minus signs will give the answer 360, and 39 minus signs gives the result 370. Odd, very odd.

Another oddity appears when you type REM |TAPE.IN (464 machines only). Can anyone tell me where line 32511 has got to?

Paul Page
Solihull, W Midlands

Please do not feed the lines

This listing prevents two linefeeds being sent to the printer. I find this rather handy, for as my printer is prone to throwing in an extra linefeed after every line. Be careful when entering the program as two data items will need to be altered, depending which Amstrad model you own.

```
10 ' Last two numbers in line 30 are set for 6128 users.
     For 664 users the numbers are &0B, &88.
     464 owners need &F2, &87.
20 '
30 DATA FE,0A,37,C8,CF,1B,88
40 DATA C3,60,01
50 FOR a=&160 TO &166:READ a$: POKE a,VAL("&"+a$):NEXT
60 FOR b=&BD2B TO &BD2D:READ b$:
   POKE b,VAL("&"+b$):NEXT
```

M Burke
Bellgreen, Coventry

Electronic fiddling

You may be interested in this tip if you have more roms than rom sockets and an eprom blower.

Modify your eprom card so that pin 27 of the eprom socket (break any connection that this pin may have) is connected to the centre pole of a changeover switch, so that it can be changed to either ground or 5V. Copy your eproms into a 27256, one eprom into the lower 16k and one into the upper 16k. Either of your roms are now accessible by using the switch – not at the same time, of course.

Another thing you might like to have is a simple way of using any standard 5¼-inch drive on the Amstrad (well, practically any – I haven't yet found a drive for which this won't work). The cable from the Amstrad to the drive will need the disk-ready line grounded – this can easily be done by shorting the last two lines together. The simple program below should be run before using the drive under Amsdos. It slows the disk access rates down so that the drive can be used without the ready line. The drive can also be used under CPM 2.2 by altering the stepping rates in the Setup program.



```
10 PRINT"SETTING DISK RATES FOR 5.25-INCH DRIVE"
20 MEM=HIMEM
30 MEMORY &3000
40 GOSUB 110
50 FOR A=&4000 TO &401F
60 READ N:POKE A,N:NEXT
70 DATA 50,0,250,0,175,30,30,1,1
80 DATA 130,&21,0,&40,&CD,&D4,&BC,&79,&32,&1D,&40,&22,&1B
   ,&40,&21,0,&60,&1E,&20,&16,&20,&E,&20,&DF,&1B,&40,&C9,
   0,0,0,0,0,0
90 CALL &4001
100 MEMORY MEM:NEW
110 FOR X=&6000 TO &6008
120 READ D:POKE X,D:NEXT
130 RETURN
```

AA

HACKERS ONLY

The section where the CPC's darkest secrets are brought to light. If you don't understand what's written in this section, bad luck. You'll get no explanation, for this is where the hackers hang out.

First an apology. Location &A897 (the number of directory entries minus one; high byte – normally contains 63 or &3F) was missing last month, presumably left out at paste-up time.

Using last month's information on the XPB I shall demonstrate how it is possible to create a new format. I said that the XPB lies at &A890 (for drive A) – this is true under normal conditions. However, it can lie in virtually any position. The correct way to test for its position is by peeking the word at &BE42.

Suppose want a format containing 10 sectors, with 128 directory entries (the directory block remaining at track 0) and sector numbers starting at &71. These are simple changes; other more complicated alterations could be made but it's best to walk before running. Here is an outline of how this task could be achieved:

The XPB must be patched: if you want 10 sectors per track, the easiest way is to alter the number of 128-byte records (location &A890). This is normally 36, and 36 divided by the number of records per track (which is 4 – location &A8A5) gives 9 – the number of sectors per track (location &A8A0). Changing the number of 128-byte records from 36 to 40 will give us 10 sectors per track.

So far we have patched locations &A890 to read 40 and &A8A0 to read 10. To alter the sector numbers used, location &A89F must be patched (this contains the first sector number) to read &71. As 128 directory entries are required location &A897 must read 127. The final alteration is to location &A8A8 (to read &FF), which tells the operating system that the XPB is being patched, preventing it from automatically selecting a standard format.

This assembly listing demonstrates how a single track (in this case track 0) can be formatted to the new specification:

```
org &9000

call find_routines
call select_the_format
call patch_XPB
call format_the_track
ret

format_the_track

ld hl,header_information
ld de,0
rst 3,format_track1
ret

patch_XPB

ld hl,(&BE42)
ld (hl),40
ld de,7
add hl,de
ld (hl),127
ld de,8
add hl,de
ld (hl),&71
inc hl
ld (hl),10
add hl,de
ld (hl),&FF
ret

select_the_format

ld a,&C1
rst 3,select_format1
ret

find_routines
ld hl,select_format
call &bcd4
ld (select_format1),hl
ld hl,format_track
call &bcd4
ld (format_track1),hl
ret

select_format
defb &83
select_format1
defb 0,0,7
format_track
defb &86
format_track1
defb 0,0,7

header_information

defb 0,0,2,&71
defb 0,0,2,&76
defb 0,0,2,&72
defb 0,0,2,&77
defb 0,0,2,&73
defb 0,0,2,&78
defb 0,0,2,&74
defb 0,0,2,&79
defb 0,0,2,&75
defb 0,0,2,&7A
```

When you come to use this routine a loop will have to be included enabling all the tracks to be formatted. Don't forget that when you wish to read or write to this new format the XPB will have to be patched.

RpM

RpM on RoM

If loading programs from cassette puts you to sleep and even disk makes your thumbs twiddle, then what you need is your software on rom. Or maybe it's not speed you want. Perhaps seeing yards of ribbon cable with a black box attached gets you going. Whether you like plugging things in or speeding things up roms and romboards are the order of the day.

Confused? Here is a list of common terminology when using multi-legged silicon creatures and their resting grounds. And a new romboard and an eprom programmer are reviewed in depth.

Roms, romboards and eprom software: R Monteiro rams them in to see how they work

ram

This stands for random-access memory. "Read-write memory" might be a better name, but you couldn't pronounce the acronym. 64k of it is resident inside Arnold – plus in the 6128 a second bank of 64k. The computer can read or alter data held in ram. The Amstrad's ram is known as dynamic ram; this means that tiny electrical pulses must be sent to it every few nano-seconds if it is to retain its data. Another form, static ram, does not need this constant refreshing. Static ram is not very much used in today's computers mainly because it's so expensive.

rom

Read-only memory. Data, once written, can be neither erased or rewritten. Your CPC contains a rom: a 32k rom which acts, due to some address-fiddling by Amstrad, as two separate 16k roms. They are known as the upper and lower roms and contain Locomotive Basic and the operating system.

The term **sideways** probably comes from memory maps drawn with roms such as *Protext* or *Maxam* bolted alongside locations &C000 to &FFFF. This is where Basic usually lives, but at a simple command any of the other roms can shift across into action like the substitute in a football team.

eprom

Erasable programmable read-only memory. An eprom can be "blown" or programmed using an eprom blower (see below). It can also be erased using ultraviolet light – and that's the main reason for the stickers you so regularly see covering their 'window': protection against ultraviolet radiation from the sun. Eproms can be blown and erased several times; after four erasures they may become unreliable.

There are two common eprom types used on the CPC machines: 2764s and 27128s. These can hold 8k and 16k of data respectively.

eeprom

Electrically erasable programmable ... An eprom that can be erased with electricity rather than ultraviolet.

prom

You may encounter this word during your travels through computer books: simply a programmable read-only memory. Once written with data it can not be erased.

romboard

Amstrad envisaged that 64k of ram and 32k of rom would be a limitation for some users, so it was made possible to extend the CPC's memory with sideways ram and roms (or eproms). These creatures reside on special circuit-boards called romboards, usually dangling from a ribbon cable at the back of the keyboard.

During the computer's life a multitude of romboards have become available. Most offer similar features, but there are notable exceptions shining above the crowd. For instance, *AA* 10 reviewed the Rombo, from Rombo Productions, offering eight sockets and dip-switches to select them easily. As a shining example we review Super Romplus from Britannia Software on these two pages.

eprom blower

A hardware device with which you can transfer your own software to rom. John Morrison's eprom programmer, for example (see review).

eprom eraser

These devices come in a variety of shapes and sizes – not to mention costs. They erase data on eproms by directing high-intensity ultraviolet light through the little windows. On value for money, the Uvipac eprom eraser from Solidisk is as good as any. Retailing at £20 it can erase up to three roms at a go – it's rather like putting them in a little solarium oven and closing the door for 15 minutes.

Amstrad rom types

There are three main rom types on the Amstrad: foreground, background and extension. Up to 252 roms can be added to your system – but I am hard pushed to find 15 useful ones.

Each rom must be given a number. The internal Basic rom normally has slot zero and by default takes over the machine. Other **foreground** roms can be given any number, and called when you want them to take over. If another rom, a different language possibly, sits in slot zero it will bypass Basic and take over the machine on switch-on.

It is even acceptable to have 64k of homogeneous foreground program by using four 16k roms – the extra three are called **extension** roms.

Background roms can be called into action on a temporary basis to support a foreground routine. A utility such as *Utopia* is a good example, its offerings typically in the form of bar commands or RSXs. Background roms in the 464 must be given numbers in the range 1 to 7. The 664 and 6128 machines can have numbers from 1 to 15 – for the reason see the Britannia review.

Eprom Programmer

John Morrison, £36.95

This is the only advertised eprom blower for the Amstrad machines at present. Available in kit form at £6.75 less than the full asking price, it is possibly an item of minority interest.

It appears in a sickly brown case with equally distasteful green edge-connector. The only thing preventing you from throwing it in the bin, mistaking it for a bit of Lego left over from your childhood, is the 28-pin DIL (dual in-line) connector lying flat against one side.

The DIL socket is a major flaw in design. Pressing an eprom into the socket and then prying it out with a screwdriver puts a lot of strain on its legs – many get weak, bent and broken. To overcome this problem I did what John Morrison ought to have done. I added a ZIF (zero insertion force) socket – cost me about £6, but he could have got it at bulk rate and done without the DIL. With the ZIF you just open a little lever to release the eprom.

The software to blow your eprom is supplied on cassette but easily transfers to disk. It has options to read and write 8k or 16k roms, or program single locations and blocks. Once programming has finished, the software will verify the rom to check that everything went according to plan.

There is an editor with which you can alter any byte before blowing the eprom. Or complete rom-files can be loaded into the editor – once loaded they can be blown.

The accompanying manual – several photocopied sheets – assumes you have a very good knowledge of assembler and how the Amstrad operating system works. This is not for the faint of heart. Included in the documentation is a small "*If all else fails*" section which is worth viewing when things don't – and they won't – work.

After reading through several advanced Amstrad programming books, ruining several dozen eproms and overdosing on coffee I managed to program an eprom successfully. If the Morrison eprom programmer was a little more user-friendly, contained a manual taking you step by step through each procedure and looked slightly more presentable, I would have no doubt in recommending it. But as it stands, only users with fluency in code and warped minds should attempt to tame this beast. It's by no means an exceptional product but it carries out without too many glitches what it was set to do.

GOOD NEWS	BAD NEWS
■ Can transfer software to eprom. ■ Software enables single-location or block programming. ■ Inbuilt editor lets you customise your roms.	■ DIL socket damages eproms without consistent care. ■ Eprom programmer doesn't look much for £37. ■ Very user-*un*friendly.

Britannia Software Ltd ☎ (0222) 48 1135
Unit M28, Cardiff Workshops, Lewis Road, Cardiff, CF1 5EB

John Morrison ☎ (0532) 53 7507
4 Rein Gardens, Tingley, West Yorkshire, WF3 1JR

Rombo Productions Ltd ☎ (0506) 39046
107 Raeburn Rig, Livingston, Scotland, EH54 8PH

Solidisk Technology Ltd ☎ (0702) 33 5511
17 Sweyne Ave, Southend-on-Sea, SS2 6JQ

Super Romplus

Britannia Software Ltd, £39.95

You may feel there are enough romboards around to fill your wardrobe and that a new one would just add to the pile without much noise. However, Britannia's board fills an annoying gap in this type of technology. It comes with a rom already installed and is reasonably priced.

Super Romplus ("plus" is by now a rather tired buzzword in computer-talk) comes cased in a grey plastic box perfectly matching Arnold's colour scheme. A plug dangles from a ribbon cable and fits the edge-connector on the back of any of the CPC machines. A further edge-connector juts from the left of the board. Now, this causes some problems if you have a 464 and need this connector for disk drives: you will either have to place your drives to the left of Arnold upside-down, plug together a conglomeration of add-ons till you can position your drives sensibly. Or have the drives standing upright in front of your keyboard. No position is ideal, but with fiddling you can set it up satisfactorily.

A single screw holds down the lid. Under it are 15 rom sockets. One of these is already occupied by ARCS (auto-rom control system). The rom sockets are numbered 1 to 15. Great, but you can't have a rom zero. "What's the big deal?" you may say. Well, plenty if you want a foreground rom to take complete control of the machine whenever you power up. This could be a language other than Basic or a utility such as an assembler.

Any of the CPCs can have 15 roms on the board. This was previously impossible on the 464 due to Amstrad's great wisdom. Way back when the 464 first breathed, Amstrad thought seven background roms would satisfy anyone. The 464's firmware checks only for a maximum of seven background roms (foreground roms can number up to 252, though). Britannia has rewritten that part of the firmware: it's all present in ARCS. Perhaps if you tickle Britannia under the chin she may sell you a copy of ARCS to use with another make of romboard. But I doubt whether you could get a setup quite as cheaply as Super Romplus.

Switching on your machine with Romplus inserted means ARCS takes control – not that it's a foreground rom, mind. Confused?

During start-up, switch-on, morning-time or whatever you call it, Arnold will initialise all roms. The roms themselves have their own initialisation routines – which among other things display copyright messages and if necessary reserve some memory. During this period ARCS will force itself to take control, popping up with a display of all on-board roms: background, foreground or extension. From here you can switch on or off required roms, enter Basic or allow any other foreground rom to take control.

One particularly nice feature with the ARCS system is that background and foreground roms can be inserted into any position on the board. If that doesn't get your blood surging, you can always call up a graphical representation of Romplus showing where the roms are fitted. You can even catalogue files, display a list of all ARCS bar-commands or perform functions on sideways ram.

Sideways-ram chips are extremely handy to have on a romboard. You can load binary files into them and use them as roms – a necessity when writing your own rom software.

On entering Basic from ARCS you will find a host of useful bar-commands: `|HELP` displays all roms along with their version number and type, `|UPLOAD,` *fn*, *n* loads a binary file *fn* into ram unit *n*, `|BUFFER,` *n1*, ... ,*n4* will let you use up to four of your sideways-ram units as a printer buffer. If you own an Epson-compatible printer you're in for a treat: Britannia has included several RSXs that give you easy access to your printer's control codes: `|BOLD`, `|CONDENSED`, `|ELITE` and `|ITALIC` are a few.

The Super Romplus romboard (tongue-twisting besides) is excellent in terms of rom control and positioning, value for money and usefulness. It will most certainly become a prominent feature on my Amstrad – even though my disk drives are on edge. **AA**

GOOD NEWS	BAD NEWS
■ 15 roms can be inserted even on the 464. ■ ARCS gives you wonderful control over your roms. ■ Roms can be positioned anywhere on the board. ■ Sideways ram can be used and manipulated. ■ Bonus RSX commands.	■ Through-connector awkwardly situated for 464 with disk drive. ■ No zero rom socket.

At last AtLast

Richard Monterio, at last, unveils the Database Manager

Database Manager (AtLast)

Advance Promotions/Rational Solutions, £29.95 disk – 6128 only

What is a database? What use is a database? Does the word database send a tremor down your spine? Does the Database Manager live up to its claims? AtLast the truth!

Consider your telephone book. It has indexed page labels running from A to Z. If you wished to find Marcel Marceau's phone number you would go straight to M, bypassing the letters A to L completely. A consequence of this is saved time. Just think how long you would spend scanning each page until you came to Mr Marceau's phone number. A database performs the same operation as you would when searching for a phone number – just much faster. It is an electronic index book.



If you wish to search through only 50 phone numbers then a database won't be of much use. If on the other hand you need to store several thousand addresses (which will include postcode, name and telephone number) or the titles of all your records (including band name, songs on the album and so on) then a database wins hands-down: a database is extremely good at searching rapidly for an item, sorting data and producing printed lists and summaries.

AtLast, available only for the 6128, runs within the CPM Plus operating system. This can be off-putting as CPM is not the most helpful or even most user-friendly system known to man. However, flicking through the first few pages of the 80-page manual puts you at ease. Its friendly, chatty style will soon remove any fear of the CPM environment (BDOSophobia?). Everything from inserting your system disk into drive A to creating a work disk is explained concisely and in layman's terms.

To use *AtLast* for a particular task entails designing at least one form. You will also have to specify the type of information that is to be held – whether strings of characters or numeric data. Consider an address book. It will have headings for Name, Address, Telephone Number and so on. *AtLast* cannot be used until you have decided how to arrange the information you are going to store.

Databases such as *AtLast* are split into *records* which can be thought of as a screenful of information – analogous to a single card in the conventional card-index box. A *field* is akin to one line on the card, for example the postcode of an address or the author in a library catalogue system.

AtLast's specification list is impressive: A record may contain up to 20 fields, but each field can have up to 99 *elements*. For example, a five-line address could be stored in a single field using only five elements. Each field (or element) may hold up to 79 characters. You can create as many forms as you desire. The capacity of each form is roughly 1000 characters or 140 field markers. As you can see, very large amounts of data can be held – in fact, file size is limited only by free space on the disk.

Options are normally chosen from a menu, with single keystrokes. This greatly speeds up movement through the database and makes life much easier. When defining a file you can choose from nine types of field – fancy effects applied to the usual character or numeric data. For example, characters can be automatically converted to upper-case and numerals can have fixed decimal points.

An *index* has two purposes. First, it provides a means to search, and obtain rapid access to, an individual record according to its indexed fields. Second, it provides an ordering for scanning or listing records. *AtLast* can have up to five indices other than the standard record number. The record number is not really practical for searching because, except in a very small file, you could never remember all the record numbers.

The indexing systems can be alphabetical or numerical and can act on any item within the file. Surnames, for example, could be sorted alphabetically or, if your entries are dated, numerically. Some databases require files to be re-sorted whenever the index needs updating – not so with *AtLast*, which always keeps its own indices up to date.

To browse through or edit any data within your file is simple. You will be asked which form needs to be attacked. Then you must choose the index type and enter a single character. *AtLast* will rapidly display the first record containing the selected character. From here you can edit the data, print it, or move backwards or forwards searching other records.

Once all the records are entered to your satisfaction, you'll probably want some form of printed list. To produce a list you will need to define a new layout suitable to send to the printer – and this need be done only once. While defining the new format you can select which fields you want on your list and the order in which they are to appear.

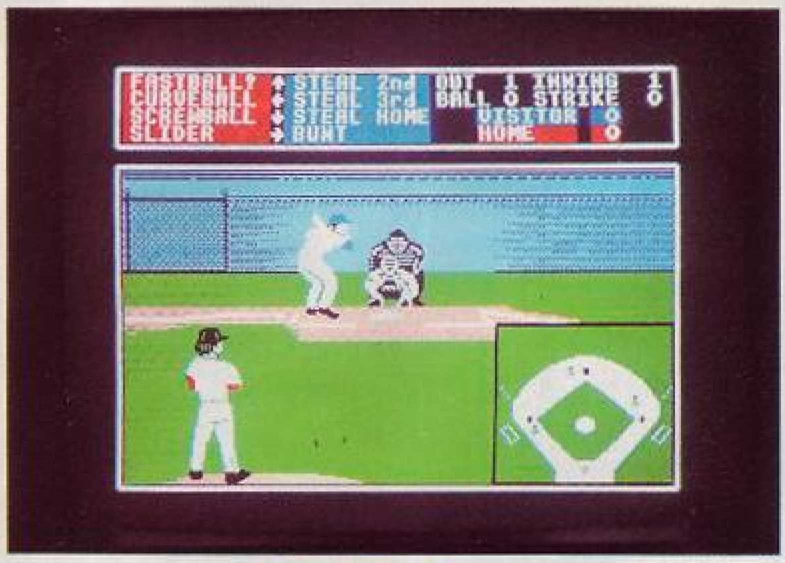
For £30 you won't find a more powerful database; *AtLast* boasts powerful functions normally found on £100+ databases. If you're new to the world of files, fields and records then *AtLast* is the ideal way to be introduced. The manual is light reading for the beginner, but rather a chore if you're an advanced user wanting reference material – a handy summary card could have been provided.

AtLast can store and manipulate large amounts of data with ease and present results equally impressively. All the operations you would expect on a database are present. The only, major, missing feature is calculated fields. ***AA***

Advance Software Promotions Ltd ☎ (0279) 41 2441
17 Staple Tye, Harlow, Essex. CM18 7LX

GOOD NEWS	BAD NEWS
■ Excellent database to start on. ■ Screen editing features are impressive. ■ Several indices are possible. ■ File size restricted only by size of disk. ■ Beginners will find manual readable.	■ Arithmetic calculations not possible on fields. ■ Manual needs a reference section.

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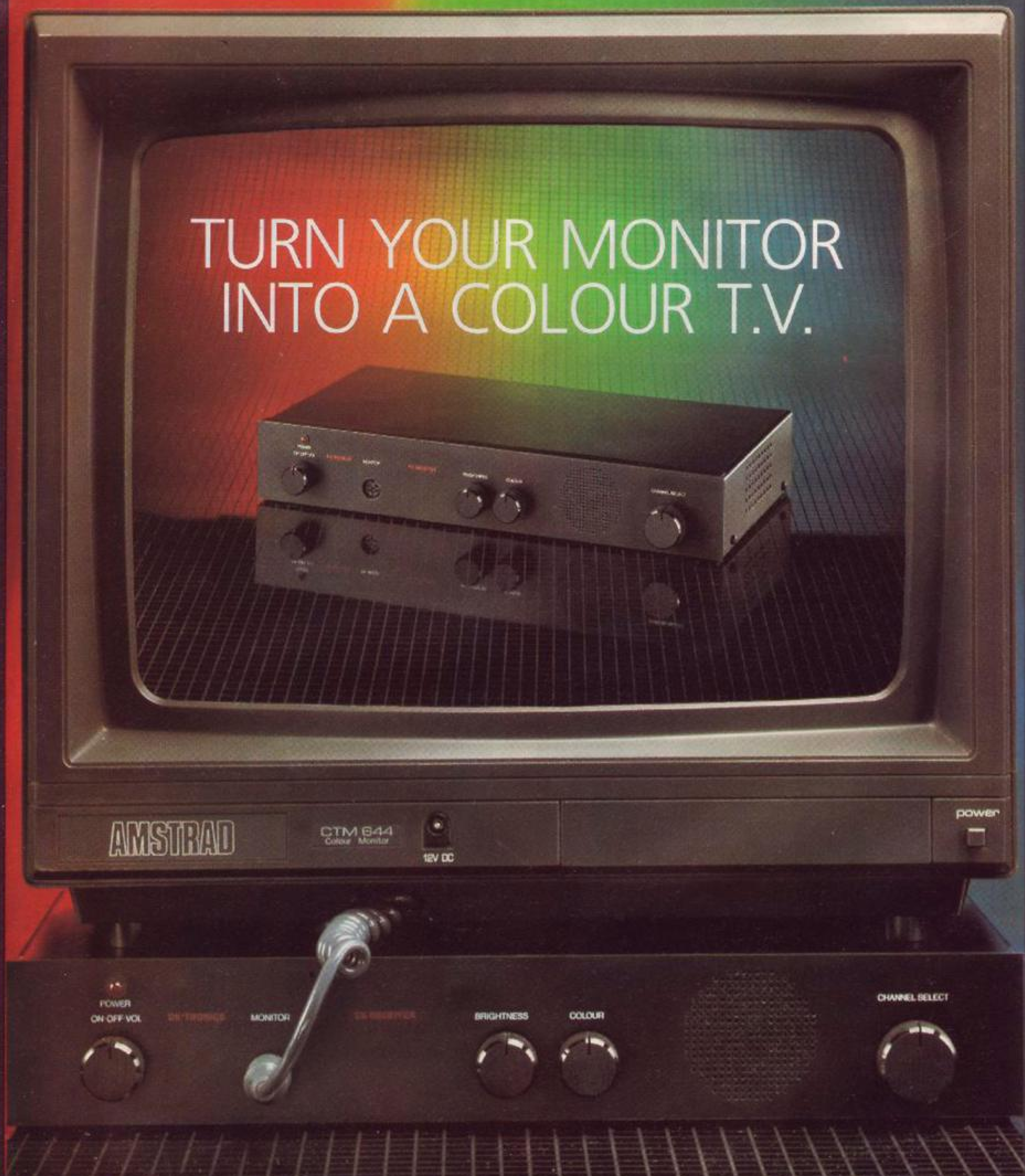
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AA/2



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PRINT POWER

Richard Monteiro test-drives two products designed to make the printed word mightier

8k buffer kit (for DMP 2000 or 3000)

Goldmark Systems, £5.50

Do you count the cracks in your ceiling while waiting for a document to print? If you own an Amstrad DMP 2000 or 3000 printer then you certainly will know what I mean. The buffer contained in these printers is very small.

A print-buffer is an area of memory built into the printer where text is stored while waiting to be printed – handy because the computer always sends text to the printer much faster than the printer can get it onto the page. With a large enough print-buffer, the computer can send data to it and get on with other, more important, tasks.

The print-buffer comes in the form of a static ram. The DMP printers contain a 2k ram. Most of it is taken up by the printer's operating system, leaving you with approximately 0.5k to play with. When you consider a page of text is roughly equivalent to 1.5k, you realise why you wait such a long time for control to return to the computer.

With Goldmark's upgrade kit you can increase the 2k ram to a more sensible 8k. Of course the printer's operating system will still use 1.5k, but 7.5k (roughly five pages of text) should be enough for your requirements.

If you're not too concerned at the prospect of undoing a few screws or possibly dipping your fingers into solder, you should have no trouble with the upgrade kit. All instructions are detailed on a single sheet of paper – so simple that even my mother could follow them. Don't panic if you have never picked up a soldering iron or read instructions before in your life; if you take your printer and the upgrade kit to a local TV repairman, he should be able to knock it into shape within ten minutes.

Once the printer's casing has been opened (by taking several screws from underneath the printer) you must discern which printer version you have. There are three types – two involve a drop of solder, and the other entails repositioning a link. That's it, apart from having to take out the 2k static ram and replace it with the supplied 8k one.

The buffer upgrade kit is cheap, easily installed and has clear pictorial instructions. It will considerably decrease time spent growing a beard.

GOOD NEWS	BAD NEWS
■ Cuts waiting for computer to accept further input. ■ Cheap: only £5.50. ■ Simple to fit.	■ Takes ten minutes of your time to install.

Goldmark Systems ☎(07072) 71529
51 Comet Rd, Hatfield, Herts, AL10 0SY

Print Master

Siren Software, £12.99 disk only

Print Master will let you print shaded dumps from your screen in a multitude of sizes, print text in a variety of shapes and sizes, even design fonts to send to the printer. As its name implies it is a complete printing enhancment package – for Epson-compatible printers only (such as the DMP 2000).

There are four separate programs on the disk: Ascprint, Printer, Util and Designer. Included too are several predefined character fonts. Siren seems to think that everyone owns a disk system, which is a shame; if you use cassette I'm afraid you'll miss out on some marvelous utilities.

Ascprint prints a document or file in "quality print" – plain English for the more familiar term, NLQ. Near letter quality is the closest thing a dot-matrix printer can get to the quality expected for a business letter from a good typewriter.

There are a few disappointing aspects to Ascprint though: the file must be under 300 lines and it must be present on the *Print Master* disk. These quirks are more than made up for by the rest of the program which gives exceptional control over what can be printed.

If, during printing, Ascprint encounters a bar symbol (|) it will expect a command from this list:

|INVERT causes text to be printed white on black rather than black on white.
|SIZE,*s* – text can be printed in a variety of sizes determined by *s*: 2 for default size, 1 for double width and 0 for quadruple width.
|ULINE underlines text.
|FONT, *filename* loads in a character font called *filename* and then prints in the new style.
|PAGE causes a page break.
|SCREEN, *filename* loads a screen from disk into the computer and dumps it to the printer.
|INPUT waits for text to be input from the keyboard, inserts it in the current line and sends it to the printer.

The following program, Printer, adds four new commands to Basic in the form of RSXs (resident system extensions –bar commands). These include |SIZE, *s* and |INVERT and |ULINE as above. The fourth command is |LPRINT (someone obviously likes using Spectrum commands). With this one you can send a string or character to the printer:

```
a$="I am going to the printer": |LPRINT, @a$
```

Util also adds new commands to Basic. This time there are five extra commands:

|DUMP dumps the screen to the printer, regardless of mode.
|CDUMP dumps any character to the printer.
|GDUMP dumps a Mode 0 screen to the printer, using 16 shades.
|BUFFON initialises a 16k interrupt-driven printer buffer. On a 6128 this is taken from the extra bank of 64k. Users of the 464 and 664 have to avoid using memory locations &4000 to &8000, which will be taken up by the buffer.
|BUFFOFF switches off the printer buffer.

The last of the four programs on the *Print Master* disk is Designer. As the name suggests, it allows you to design character fonts which can be sent to the printer. You can alter any of the fonts supplied – which have some rather interesting names like Chicago, City and Flash. Or you can design, from scratch, an original font.

Overall *Print Master* is a very nicely presented package with exceptional printing functions. In both ease of use and time-saving, this package scores. If you own a printer, this utility will show what it is really capable of. ***AA***

GOOD NEWS	BAD NEWS
■ Text can be printed in a variety of sizes. ■ Dumps are of high quality. ■ Simple to redesign characters and send them to the printer. ■ Nicely executed printer-buffer thrown in.	■ Disk only. ■ File can be only 300 lines long when using Ascprint option.

Siren Software ☎ 061-848 9233
Trafford Technology Centre, 43 Elsinore Rd, Manchester, M16 0WG

Survival guide to the software jungle

We get many letters from readers asking how to get started in the software business. In this feature, production editor Jim Nagel reviews a new book on the subject and talks to four old hands about their very different routes to success. One originates games, one converts, one produces serious software and one specializes in mail-order.

Seven years of Siren

Writing machine-code since age 13; taught himself from books. Started doing original Spectrum games for Hewson, then fulltime with Lothlorien, Terminal, Ocean, converting games for the Amstrad. Left to set up own business in his bedroom, selling his tape-to-disk transfer utility.

Meet Simon Cobb of Siren Software, now "quite an experienced businessman, I suppose," at age 20. He sells to all corners of the globe and employs four staff, including a fulltime programmer – and "I'd better give a mention to me mum, who does all the bookwork." Moved out of the bedroom a long time ago to lux. spac. offices two miles from Manchester city centre.

Simon's *Discovery*, the tape-to-disk utility, got "an excellent review in *AA*, and this contributed to the success of Siren. Things started taking off after the first Amstrad show in London." The show led to an introduction to Harry Powney, who wrote *Masterdisk* and then *Handyman* on a royalty deal with Siren. Meeting Tim Kay at Anwuc – the Amstrad Northwest User Club – led to setting up Silicon Systems as a joint venture selling 3-inch Amdrive disk drives and the new $5^1/_4$-inch Megadrive.

"Most of our programmers are surprised at how well things sell," said Simon. "We always give a substantial advance," which is soon paid off against regular monthly royalties.

To anyone starting off in the software business he offers this advice: "Make sure you get a good contract, checked over by a solicitor. And if a company is really interested in your software, it should show its faith by giving an advance. There are so many cowboys and ripoffs in this business."

With most of Siren's products, either Simon and company write a specification and look for a programmer to write it, or else a programmer comes to Siren with an idea. Or it could be electronic contact: *Discovery Plus* is Siren's best-seller, yet Simon has never met the programmer except over the phone.

"We try to keep our programmers busy: once they finish one project we start them on something else." *Printmaster* is the latest release, and as usual Siren aims to launch a new product at the next show. But "as a programmer myself I can appreciate, more than some, how long it takes to do a job. And I organize my own ad budget, so I know that advertising it before it's ready is just money down the swannee."

Another new line for Siren is importing software from abroad, particularly French utilities. "The French market without a doubt is really catching up. Within six months they're going to be on our par if not beating us at our own game."

Running a business takes more time than Simon would have imagined. He prefers programming. "It's just a shame that I haven't any time to write any software myself."

Golden rule for mail-order

Mail-order is the name of the game for Brian Barton, who has run Goldmark Systems from home since March 1986. Software is still not a full-time thing for him, although he is self-employed: his main business is domestic-appliance repairs. He originally bought a computer to keep track of spare parts he carries on the van.

"I read the *Which?* report on the Amstrad 464 and the next day I went out and bought one." He tried a number of stock-control packages and found many had bugs. John Campbell of *Masterfile* fame helped Brian out of many a snag.

Brian follows Campbell Systems' example himself: he runs a helpline weekday evenings between 6 and 9 and on Saturdays for people having trouble transferring tapes to disk using Goldmark utilities such as *Speedtrans* – which has sold 1,000 copies since last April. There's a worldwide club of Goldmark users, and "because of what the club members wanted, we started doing odds and sods in the way of software" – romboards, roms, business software and games.

Immediate turnaround is the Goldmark golden rule in running a mail-order business, Brian says. "If something comes in in the morning, shove the bit in the package and get it out by noon. With mail, people already have a delay built in, so never leave somebody's order sitting around. We actually take our stuff to the post office and hand it to the people behind the counter. We use the little local post office: the people there rely on you to keep themselves in business and are specially helpful."

To avoid legal pitfalls he uses the GPO's certificate of posting for inland ordinary parcels – gets them by the bookful – and insures overseas packets. "If anything goes astray you as the sender are liable for it."

Another Goldmark rule when developing new software: "I'm not putting anything on the market until it's actually running properly. Not any advertising till then, or I get all the hassle of people ringing up, sending their money. Unlike *Pagemaker*."

What about making a living from mail-order? "You'd have to be a prolific writer of software. There's no way a beginner with one or two products to sell could live from it. All the profit would have to go back into the business. It would probably take five years to get yourself self-supporting." Large profit margins are available only in business software, not with games "because there's a cutthroat shop scene out there."

■ Hearing of kilosales for *Speedtrans* chuffed our RpM. Even though he sold it to Goldmark for £70. "I don't have any regrets. I underestimated what I wrote, but I just did it as an enthusiast. It was only half-an-hour's work."

Grand fun converting *Pendown*

"You have to do it the hard way once." That's Steve Grand's philosophical view after converting the word-processor *Pendown* from the Beeb to the Amstrad and the RML computer.

He accepted the job – his first big software contract since he quit teaching – after estimating it would take him 350 programming hours. That was 12 months ago!

"The hard thing if you're asked to quote for a job," said Steve, "is trying to weigh up the amount of work against what they are prepared to pay. Ask for too much and you get no job; ask for too little and you sell yourself short. You never know if they will say no to a ridiculous fee. I suspect that publishers underestimate the amount of time involved." A good formula for calculating the time needed for a programming job: make a careful estimate and then multiply by four.

Steve's actual programming hours on *Pendown* totalled about 600. The main clogging factor in the year's total was field-testing. His estimate also went wrong in assuming CPM would be more portable – but a word-processor involves much screen-handling, which varies so much from one machine to another that CPM proved "too thick".

So the £1200 lump sum he quoted Logotron for the job was only about a quarter of what he now wishes he'd asked. Still, "on the whole it's all been good fun." It was a first job and it has gotten him known in the market.

He asked Logotron for advances in stages during the project "just to make them take the same risks." That's advice he'd urge on anyone doing free-lance programming for any company, especially in the games market. "You never know if you're going to be dropped. If they won't pay (reasonable advances) don't work for them."

Education, in contrast to games, is quite an honest market, and a lot of his arrangement with Logotron was loose and vague rather than contracts. The job came Steve's way through his friend Peter Hunter, the Somerset teacher who wrote the original *Pendown* and sold it to Logotron. The main disadvantage of the friendly looseness was "not knowing in advance when the end had come. It's your responsibility to put bugs right, but not so easy

to define when it becomes an extension to the program so that you're improving rather than mending."

Steve's main Amstrad tool for this job was *Maxam*. Although it's the best available he missed macros and the ability to work with library modules. He'd prefer to leave most of the program assembled and just tack bits on as he develops them, rather than always having to reassemble 100k or sourcecode. "If you're going to do this sort of job more than once, you've got to work on a bigger machine, even if your target is the Amstrad." The PC would be about the minimum system – there he could use programming languages like *C*. Logotron in his case supplied the equipment he needed. "If you have to find that yourself, it's a lot of money."

Steve's final advice for other free-lance programmers: Watch the taxman. If doing software on a regular basis, become self-employed rather than calling it casual earnings: many expenses can be claimed against tax to cut overheads.

"It's not the sort of game you'd want to do if you have no other means of support." What's his? "My wife."

■ **See full review of *Pendown* in *AA* 18, demo in special-offer pages this month**

Jones: coding up a gamestorm

Stormbringer is in the works now from programmer David Jones, author of Mastertronic's best-selling *Knight Tyme* series. The new game will complete a trilogy.

David, now 27, taught himself Basic on an old Video Genie back in 1979 and soon found he could cope with machine-code as well. It was a hobby until 1983 when he was made redundant from his quantity-surveying job. He got onto the enterprise-allowance scheme, set himself up as a freelance programmer and hasn't looked back. But the first year was pretty rough. Trying to set up distribution was worst. "We got involved with Prism, and Prism went bust – quite a blow."

Finders Keepers was one of the early projects. "We intended to sell it ourselves, organize distributors and do the advertising ourselves. But it's not easy. You have problems getting noticed by distributors for starts – they want to deal only with large quantities." So he finally took the half-finished game and showed it to Ocean: "You finish it and we'll look at it again." He went to Mastertronic: "You finish it and we'll definitely sell it."

He's dealt only with Mastertronic ever since. "It's a good company. They help get projects finished. And they'll help supply support routines for an interesting idea." Mastertronic, however, unlike some software publishers, pays freelancers no money up-front during the development stage – so if this is your first project, you won't see any cash for a fair while. The first advance against royalties comes when the finished master copy is handed over. Royalties – a percentage of sales – are still coming to David every three months since *Finders Keepers* hit the streets in January 1985. The game has sold 280,000 copies for all makes of computer.

How does David go about creating a new game?

First he looks around to see if other games already exist with a similar concept. He does a fair number of sketches at the beginning, ideas of how the game's challenge will build. "There are a hell of a lot of notes to start with, but I'm not one of those who writes down to the *n*th degree before I start. It's a creative process, like doing a painting. You can say this doesn't look right and paint over it." But this may not be the right approach to designing a business program, he says. "With a game you haven't got problems to solve except to entertain the player."

In the next stage he gets together all the sourcecode from previous games and picks out any bits to use. "I have an enormous great library of subroutines a first-time writer won't have. I knock up a version as quick as I can. It's nowhere near what the end-product will be like, but it's something to give an idea."

He no longer tries to do graphics and music himself, but jobs it out, usually to Ray Owen, another freelancer. David explains the concept of the game and the style he's after. "In a week I'll have back the graphics, but in that time I'll have the game more advanced." A Mastertronic programmer does the tunes.

Then comes prolonged testing and trying-out of all the bits. Only at the 90% stage is it time to show the new game to the publisher. "Before that they'll get the wrong idea if it looks tacky." He listens to their ideas of things to include or knock out. "By then you know exactly what you want to do with the remaining 10%."

Final testing takes a long time to do properly. "For the first program anybody is doing, testing to the *n*th degree is an absolute necessity. A bug can put a publisher off for good." A company will have more tolerance with an already successful author.

Legal arrangements are that David keeps the copyright, but Mastertronic is licensed to copy the game for five years.

David would advise any newcomer to the game business to look through a book like *Law Made Simple* or *Teach Yourself Law*. "Be very wary of partnerships," he says from past experience. "If one partner gets into debt and you have funds, you can be sued." Make sure you have proof of your own copyright: post a copy to yourself, asking the GPO to stamp across the seal, and don't open it, or ask your bank or solicitor to date and hold a copy. "If you're dealing with a reputable company, their word is enough, but even there I'd take precautions because you don't know who a company is until you've dealt with it."

By the way, a quick book

Jim Nagel finds wise Solomon's guide to software success disappointingly shallow

Meyer Solomon

The software business

BBC Publications, ISBN 0 563 21141 5, 144pp paperback, £5.50

The subtitle is "How to create, publish and sell computer software", but if I were tempted to set up in the software business, I don't think I'd buy Meyer Solomon's book for its first half – which more or less comes under the heading "how to have an idea". For practical information, the booklist at the back of the book and the sample contract for a software author are what I would find most useful. Another appendix, real-life tales from two software writers, says as much as the rest of the book about being a novice in this business.

Meyer Solomon was a founding editor of *Computer Age* magazine way back in 1979 and of *Personal Computer World*. I'd have expected a more solid book from him. The first word coming to mind was "waffle" – many a well-put, clever, entertaining proverb, but much waffle.

Cut the opinion; what does the book actually cover?

Know yourself, says Solomon's first chapter: what are you best at? Search out information, says the next chapter (short chapters), to get an idea of the market. Exercise your mind to generate ideas. Test your idea – a list of criteria. Then you might need a team to turn it into software and paper, a proper product with a jazzy name. Look at the market: what sector is ripe for you? Look at the software already out: what opportunites for you? Equip yourself – you'll need a computer, and do not put disks on top of the monitor. Write the software; break it into modules that can each be tested; a third of the overall time should be spent on detailed planning at the outset, only a sixth to the actual coding and the other half to testing. Write clear and handsome manuals. Test your work yourself before approaching any publisher. Be prepared to give customer support for a long time after sales.

Someone thinking of carrying through a software idea might find the most useful chapter in the book comes about two-thirds of the way through: an outline of the stages a piece of software goes through from proposal to testing to delivery, from the publisher's point of view.

He spends disproportionate space on telling how to write plain English, and then damns himself by using the word "reify" in a chapter title. I had to try three dictionaries. (You try. Toot has the answer somewhere on this page.) And it seems he's never heard of producing a typeset page direct from the author's own disk – we do it every day at *AA*.

He devotes exactly two paragraphs to selling software by mail-order, a topic vita to many would-be software sellers.

All in all, the book of Solomon is a once-over-too-lightly collection of loose jottings. His favourite word is "incidentally". As he himself puts it in a parenthetical passage: "By the way, I have neither the expertise nor the space to go into various topics in fine detail."

re·ify \'rā-ə-,fī, 'rē-\ *vt* [L *res* thing — more at REAL] **:** to regard (something abstract) as a material thing

Drives to distraction

A straightforward introduction to disks and operating systems

JW Penfold
Using your Amstrad CPC Disc Drives
Bernard Babani (Publishing) Ltd, ISBN 0 85934 163 1, paperback £2.95

For £3 you can discover what a disk drive is, does and looks like. This latest book from the pen of JW Penfold – actually he used *Tasword 6128* – deals with filing systems, both Amsdos and CPM operating systems and delves into program development.

The book starts off with an introduction to disks, what they are and how they can be used. It assumes you are an absolute beginner and justifiably tells of the evils of cassette-based systems – mainly how unreliable and slow they are. You are treated to a rundown on how a disk is organised into tracks and sectors: 40 concentric tracks on the Amstrad, each containing nine sectors of 512 bytes. Files can be stored anywhere on the disk and retrieved with equal ease – random access. Cassette systems suffer in that programs are saved one after the other on one long ribbon, and must be located and loaded in the same sequence. That accounts for the great time saving with disk.

You can drop the user manual that came with your Amstrad disk-drive. You will learn much by reading Penfold's first chapter; it virtually tells you how to set up your disk systems and warns you of any pitfalls that may appear along the way.

If Amsdos, CPM, RSXs and Basic disk commands have you tossing and turning at night, I'd prescribe you the section on operating systems. Both Amsdos and CPM are operating systems, which look after reading and writing of files, formatting (organising a disk into tracks and sectors) and other tasks that are generally taken for granted. Amsdos lacks a few features as an operating system: among other things, a formatting facility and an unerase function (very handy when you have accidentally deleted every file on your system disk). But what Amsdos lacks, CPM kindly supplies.

The book contains a very useful list of all basic commands that are relevant to disk operation. A further section deals with the extra commands (bar-commands or RSXs) that the disk operating system introduces.

Some of the files supplied with the system disk you received when purchasing a 6128, 664 or disk drive for your 464 are explained in simple terms that make CPM seem less daunting – even friendly.

The book ends with practical applications with which you can get your feet wet. A full-featured database is listed that you are encouraged to type in. After every 10 lines or so appears an explanation of what the program does. File-handling routines are given exceptional coverage.

At no point in the text are you left in the dark – Penfold always chooses terms that are easy to grasp. Reading the book will encourage you to take a closer look at your disk system, make better use of it. You'll wonder how you ever coped without it.

GOOD NEWS	BAD NEWS
■ Lovely price. ■ Ideal if you have just started using a disk system. ■ Uses simple terms and ample descriptions.	■ Could have gone into more depth in places.

The ram that thinks it's a rom

Confusing the computer can be useful, Rpm finds



Amram
Silicon Systems, £39.95

Silicon Systems has produced a peripheral that will have rom users (and abusers) applauding. It is a tool that will aid eprom programmers to save time and develop their software.

What is this magical device? It's sideways ram: an interface that plugs into your Amstrad and behaves as a rom when in fact it is ram.

Confused? You probably know that *rom* means "read-only memory" – the computer cannot write over or change data on this sort of chip, so it's used for software you always want on hand, such as the Basic language itself. And *ram* means "random-access memory", sometimes called read-write memory. The *sideways*-idea is that several blocks of memory can share the same addresses; a simple command shunts in one block when it's needed instead of another (see diag ram in Problem Attic, page 24). Basic and a word-processor such as *Protext* are the sort of beasts that live this way. Memory addres ses involved on the CPCs are &C000 to &FFFF for *upper* roms – in fact the same location as the screen – and 0 to &4000 for *lower* roms.

But why does Amram act like a rom when it's really ram? Amram consists of two banks of 8k ram slotted into rom socket five, and you use the rom-enable firmware routines to access it. It behaves like a rom – until you flick its write-enable switch and a red diode glows to warn you data can now be written as well as read. The green LED shows the computer is reading Amram data.

Amram really sparkles when used with its bundled icon-driven software. You can load data from another rom, customise it (perhaps you like seeing your name in lights instead of the rom's sign-on message), and then send it to Amram. Resetting the machine won't get rid of the data held in Amram; only the other switch on Amram or switching the power off will kill it.

Of course altering the data held in other roms and saving it to Amram could be just a gimmick, unless you wanted, say, to alter some of the defaults in *Protext*. The real use of sideways ram is for developing your own rom software. Create your own program then save it to Amram – it is now simple to test it rather than wasting time and eproms. I discovered this the hard way: after each modification of my rom software I had to blow an eprom to test it. So I'd thoroughly recommend Amram.

Silicon Systems ☎ 061-848 8959
Trafford Technology Centre, 43 Elsinore Rd, Manchester, M16 0WG

GOOD NEWS	BAD NEWS
■ Fun to alter other roms. ■ Icon software is simple to use. ■ Excellent program-development tool.	■ Of minority use.

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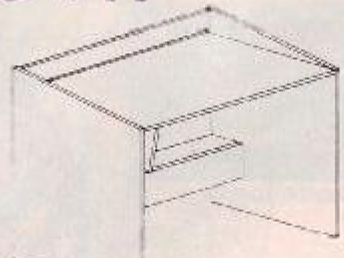
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A day in the life: Chips in the eyes

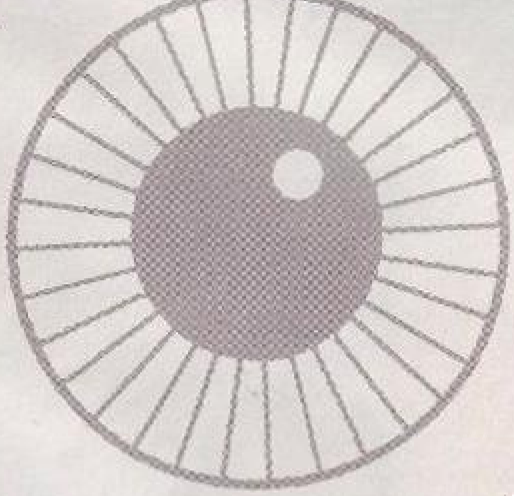
John Stallwood is director of the Optical Information Council, an office in the City of London handling advertising and public relations for eyecare and ophthalmic optics

6:45am Brian Redhead's sickeningly cheerful tones wake me as the radio alarm, with irritating reliability, clicks into life. There's morning tea to make, a teenage daughter to rouse, a son to shout reveille to, and then it's off to catch the 8:16 to the big city.

Being a bit of an electronics freak (not knowledgeable, you understand – just a user) I'm likely to be using a Microwriter en route – a handheld word-processor with a memory so that text can be written in wherever I am, be it on the train or in a hotel. This can then be transferred to a micro-recorder for tape storage or printed out as needed. Next to my 6128 it's the most used piece of wizardry in my electronic armoury.

9:30 Arrive at the office. I examine a daily schedule that I try, sometimes in vain, to keep up to date. I note that today I've arranged to check with the press officer her progress on a couple of projects, then work with the bookkeeper on a spreadsheet that we've set up using the 664 we have in the office. The 664 was introduced originally as an inexpensive way of familiarising us all with computer usage, but has proved quite up to the modest needs of our office for a variety of purposes.

10:15 Having gone through the mail and sorted out the items needing replies, I print off the notes I was doing on the Microwriter and annotate them for the typist, who uses a Screenwriter for finished typed work. Then it's time to see the press officer. Muted wails from the bookkeeper: she's found *Mini-Office II* won't load. We get to the spreadsheet by loading the w-p program and then exiting to the main menu. I hope it's just a temporary loading quirk. The spreadsheet is amended, and I ask for a printout for use later on.

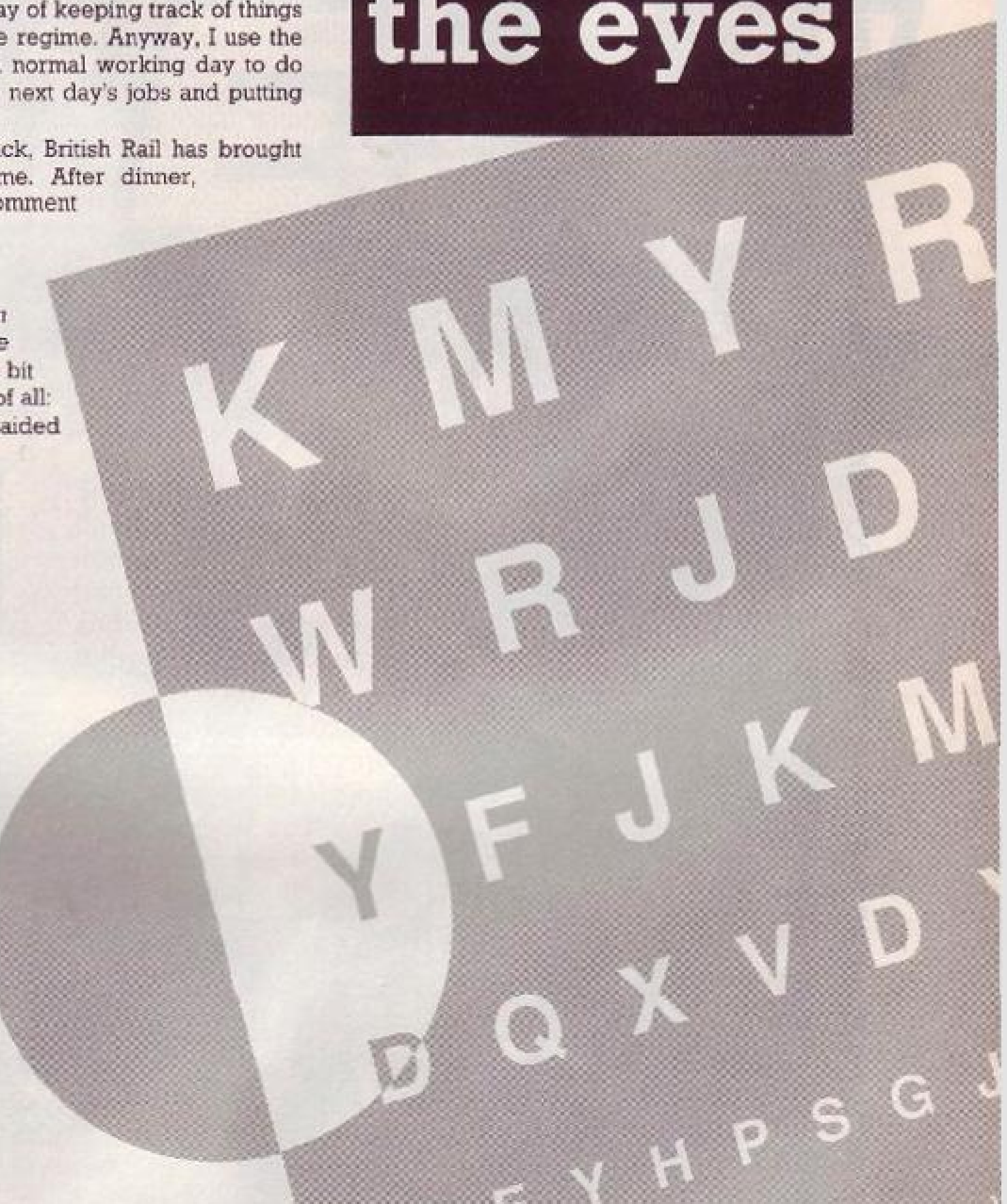


12:30pm Back in the office I find the bookkeeper has finished with the 664 so it's free for me to slot in *Amsword* and hammer out the first draft of the minutes of yesterday's executive committee meeting. This chore is one of the penalties of having to combine PR work with administration. I prefer the *Protext* that I use at home on the 6128 for its speed, but find *Amsword* has plenty of versatility for this kind of use and is wholly reliable.

4:00 I leaf through the diary and see (with a slight jolt because I'd forgotten) that I'm due to give a talk to an optical society in a week. I do a 'brain-pattern' for the talk – that's a method, with variations under different names, used for putting down thoughts as they occur in random order so that they can then be given a sensible format later. I'll refine this at home, using the newly acquired *Brainstorm* program

4:30 I'm trying conscientiously to apply the system called *Time Manager* I received for Christmas, in hopes of bringing more order into my business and personal life. Using an ingenious combination of diary and schedule, it offers a good way of keeping track of things *if* you keep up the regime. Anyway, I use the last half-hour of a normal working day to do this, checking the next day's jobs and putting in new entries.

6:30 With luck, British Rail has brought me 45 miles home. After dinner, ignoring wifely comment on the antisocial qualities of computers, I run the *Brainstorm* program to do the talk, and then the bit I really like best of all: CAD – computer-aided design.



With a business exhibition on the horizon I need to design an exhibition stand. Here *Model Universe* comes into its own. This very clever program lets me design in *x, y* and *z* coordinates, and then to 'walk onto' the design and look around it. The *AA* reviewer of this very clever program from Arnor questioned its usefulness; I've used it to get a preliminary look at a proposed home extension as well as to design hobby woodwork projects. In each case I find I can get a good printout using an Epson LX-80. It's also possible to transfer disk-stored files from it onto an art program for adding details (though having done that, you can't go back with it into *Model Universe*).

11:30 Pack-up time – with an acknowledgement to the accuracy of the wifely comment. What, you ask, no games? No, not interested, I suppose.

Also no programming, I'm afraid, other than some very basic Basic now and again. Some are very happy programming; I'm very unhappy at it, although I seize on utilities with gusto and (perhaps because I'm of what is kindly referred to as the older generation) I retain a sense of wonder at the things that can be done with this manifestation of the chip. It's a long way from my first feeble efforts with the original ZX80.



AA

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ACTION TEST

MASTERGAME



RAVES

GAMES TESTED

Springing into action

Spring is here and brings with it sunshine, showers, flowers and... three-foot snowdrifts. The weather may not be hot but the software is, so come and warm your hands over the games that glow. Six games stood head and shoulders above the others this month, each for different reasons, but all are outstanding.

The Mastergame sends you back to school, but it's the *Academy* where space pilots are trained. This is the follow-up to the highly successful *Tau Ceti* and will put you through 20 missions that should turn out a superbly skilled fighter at the end.

Ocean has finally produced an excellent film-licence game in *Short Circuit*. It combines an arcade adventure and a scrolling arcade game to make a whole that's great to play and great to listen to as well.

Sentinel looks set to make some big waves in the software pond because it's the most original game of the year. Over 10,000 landscapes and an abstract challenge that will definitely intrigue you.

Disk owners have a treat in store because *Koronis Rift* comes only on disk and is a cracker. It features those famous fractal graphics and gameplay that at first seems simple but the more you play it, the more its hidden depths are revealed.



If you like a good old-fashioned arcade challenge you won't be disappointed either, because *Bombjack II* is guaranteed to have you in the throes of addiction. 40 levels, superb graphics and you won't be able to let go of the joystick. Round all that off with a wacky arcade adventure in a helicopter called *Flyspy* and you've got everything you could want from a games section.

Just a reminder that the new Verdict box *incorporates* the Good News and Bad News points. They're compiled in exactly the same way as before. The only real change is that they now go into even more detail in trying to describe the game's qualities or shortcomings. Good News has a white box and Bad News a black one.

SHORT CIRCUIT

Ocean, £8.95 cass, £14.95 disk, joystick or keys

Bwilliant! twuly, twuly, bwilliant! I've been playing it so much that I've hardly got any time to write the review. More RAVEing later.

The first part of *Short Circuit* is an arcade adventure and the second is an arcade game, set in the future where a Strategic Artificially Intelligent Nuclear Transport (S.A.I.N.T.) robot has blown a fuse or something. Ze mad professor who built it vants to tear it apart to see vot vent wrong! Well, that's the *basis* of the plot, but more unfolds.

You control a robot, a sort of a Simon Templar of the robotics world. In the first part, you have to try to figure out how to get out of the Maximum Security Compound (the AA Team – get it?) and escape to freedom.

There are lots and lots of rooms furnished with items of furniture ranging from coatstands to flowerpots.

You start off in a room equipped with a desk, coatstand, computer and a chest of drawers. There are two doors, one of which is locked. Through the other, is another room, furnished with, among other things, another computer. This one you can link with, using the Link program resident in your robot's memory, and download programs. There are three programs you can download: Search, Laser and Jump.

Eventually, you will need to have the Laser and the Jump programs in the robot's memory – which is limited to three programs, one of which must be the Link program.

SECOND OPINION

It comes as a shock to find a good game coming from a film licence, but even more so because it's from Ocean. I hope they've finally got their act together. The two games are excellent and have delightful graphics. The variety is the real clincher, with something for everyone. **BW**

GREEN SCREEN VIEW

Both parts playable.

Once you have downloaded the Search program, you can explore the complex complex. By being in Search mode, and pressing Fire while pushing against an item of furniture, your robot will search the object. There are many little fingies which you can find in the furniture – for instance, in the coatstand in the first room is a Pass Card, and on the desk under the computer, is Remote Control. Wasn't it good of me to get you started like that?

Anyway, the upshot is that you must find the equipment needed to build a S.A.I.N.T. replica and the manual for it. Also, it is necessary to find the components needed to build the Laser and Jump mechanisms needed in the second part of the game.

To reach part II, you must either escape from part I, or press the keys O, C, E, A, N together. Either will prompt you to wait while part II is loaded.

In part II, your pursuers take the form of guards and other S.A.I.N.T.s after your grease! You must run away or shoot them while trying to find the van. All this must be done before the helicopter arrives – yes, a helicopter! Don't fret: you never get a chance to actually fly in it. I suppose even robots suffer from pterophobia! This part of the game looked a little less frustrating than the first. However, as often the case, it turned out to be a real ...

Movement is only left to right, but you can turn around. As well as shooting the guards and ex-pals of yours, you have to jump or duck to avoid the abundant wildlife. It's not fair really, 'cos I've got a naturally sadistic nature, and really couldn't care less if some squirty little rodent got under the wheels of my well-greased chariot. But your robot gets a sudden attack of grief and remorse and pauses to see if the poor animal is hurt.

Puddles along the way will slow your robot to a crawl, so it's best to avoid them. Rivers will give you a bad case of instant rust – obviously your robot was made in Japan.

Well, guess what? I liked this game immensely. The graphics are good and the music is tremendous. The loading screen gave a good idea of what the graphics were going to be like. I've been entranced by this game since it left Sir Bob's hand. Even when I'm not playing it, I'm thinking about it. It really grabs you!

The first part, like the second part, employs set positions – objects start off in the same place every game.



This is good, because it leaves you more time for the hard finking part.

The second part is just as interesting as the first part but gives you an automatic judgement of how well you do, by the distance you travel.

You know how you keep going back to *Elite* to see if you can complete the next mission? Well you will be doing that with this game. **CB**

The Verdict

GRAPHICS 71%

- ☐ Excellent graphics and use of colour in part I.
- ☐ Very smooth scrolling in part II.

SONICS 67%

- ■ No actual sound-effects.
- ☐ The music makes up for the lack of effects.

GRAB FACTOR 81%

- ☐ The two parts are easy to get into.
- ■ Part II can be very frustrating.

STAYING POWER 88%

- ☐ Both parts are hard to complete.
- ☐ Lots of variety with the two parts.

AA RATING 86%

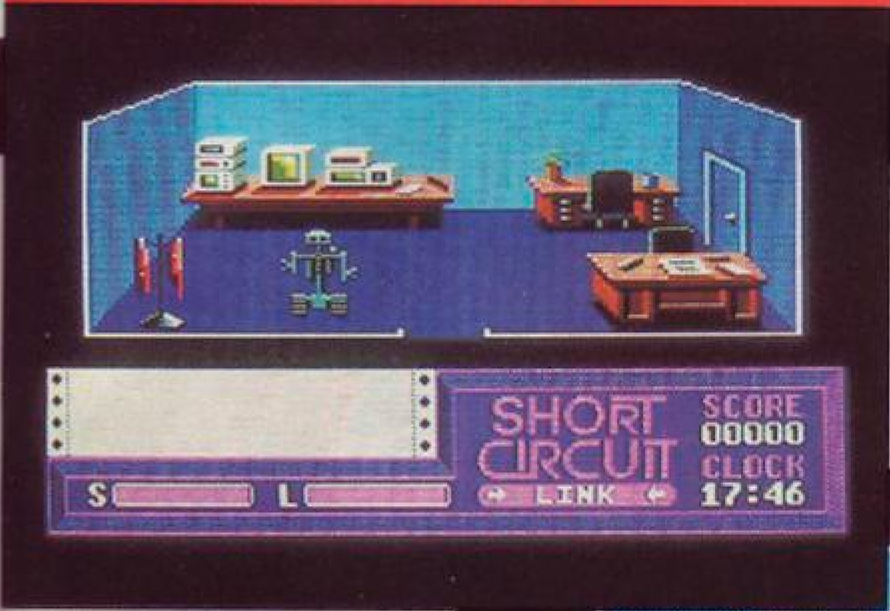
- ☐ Shock, horror – a good film licence.

FIRST-DAY TARGET SCORE

Part I: 6000

Part II: Get as far as the green thing that jumps at you.

4. Search in this room for a remote control and a pass card





1. This is Number Five and he's alive

2. First link up to this computer to download the search program

3. Don't go through here till you've searched the room above



1. Shooting the guard will drop his trousers and bring him to an embarrassed halt

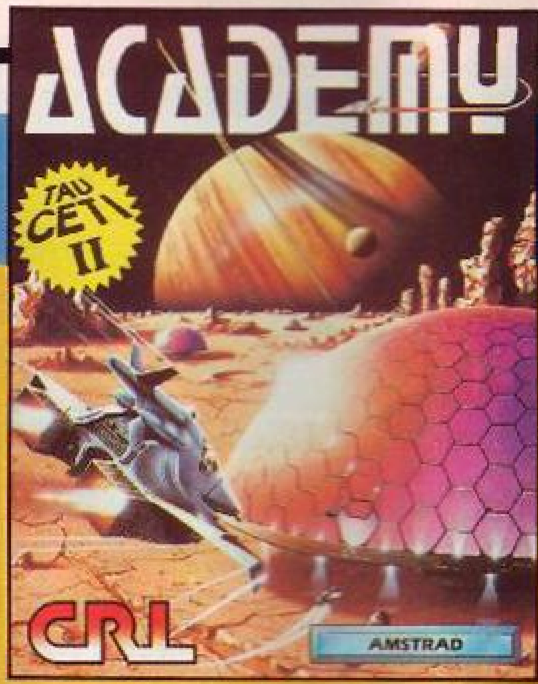
2. Oh dear. You've run over a defenceless rodent and pause to see if it's all right

3. Puddles slow you down but large stretches of water are fatal



ACADEMY – TAU CETI II

CRL, £9.95 cass, £14.95 disk, keys or joystick with keys



First there was *Tau Ceti*, then the legend continued with the disk version *The Special Edition*, and now there's *Academy* the successor to both. It features similar shoot-em-up action to its predecessors but there's a wealth of new things to discover.

The action is once again based on the activities of Gal-Corp and its intrepid skimmer pilots. If you thought you were ready for anything after *Tau Ceti* then Gal-Corp has a surprise – you're going back to school. The Gal-Corp Academy for Advanced Skimmer Pilots will put you through 20 missions that will test your abilities to the limit.

Each mission has a name and a specified task that you have to complete in order to 'pass'. They are assigned in five groups of four missions each. These are very varied, the first four being "if it moves...", "red dawn", "meltdown" and "softly softly". Later missions are intriguingly named "...at the OK Corral", "out of the frying pan..." and "where to, guv?"

The tasks vary widely. They include destroying all robot craft, destroying an individual target, battling time limits, solving problems and negotiating tricky obstacle arrangements. Whatever the mission you can bet you'll see plenty of action. In concept they're a bit like the outposts from the *Special Edition* but much more complicated, varied and larger.

On each mission you fly a skimmer which will be familiar to players of the previous games. As it whisks you over the planet

Other systems include the INFRARED unit that allows you to see at night, and the JUMP/DOOR unit that allows you to use teleport pads and dock with buildings

WEAPONRY: optional, in addition to your lasers you can be armed with four sorts of weapon: missiles, anti-missile missiles, flares and delay bombs. If installed you can have four or eight of each and replenish them when docked. Missiles home in on targets, AMMs destroy robot missiles, flares light up the landscape at night and delay bombs can destroy large stationary buildings.

GAUGES: the gauges for speed, fuel, height, shield and laser temperature are always present. The laser power, drive power, shield power and steering can all be changed at the design stage between low, medium and high values, but with the consequences of weight and cost.



TARGETTING: optional, shows when an object is in your sights, when you're in someone else's sights, and when an attack has caused a power drain.

MAIN VIEWSCREEN: all the action takes place here. Watch out for the sun setting, infrared vision, different-coloured planets and a whole host of hostiles.

COMPASS: optional, gives important directional info; a direction finder will guide you back to your supply base (Gal-Corp Landing Vehicle.)

MESSAGE WINDOW: used as a text-entry window when docked with a building. In flight it updates you on such casual events as mines detonating on the ship, vital ship's systems being destroyed, and your game coming to an abrupt explosive halt.

PANEL: can come in four different textures and many colours.

MASTER GAME

surface you'll encounter many robot craft from *Tau Ceti* and a good few new ones. In all there are over 30 surface features, but they're not all hostile. Of the new threats there are deadly kamikazes who just ram the skimmer with devastating effect and some fortresses that could flatten Mike Tyson.

The graphics have been beefed up. Each mission takes place on a different planet with surfaces and suns of varying colour. The robots too come in designs that are attractive – until they start shooting and give you other things to think about.

The game is superbly presented and has some of the most comprehensive options you could ever want. Each mission is described in text and shows the planet where it takes place. Most important is the option to design your own skimmers (see screenshots), which allows you to produce craft particularly suited to a mission. Not only that but the view screen can be completely redesigned as well. The backgrounds can be of different colours and textures, and the various boxes placed anywhere (as long as they fit).

You can use three skimmers already set up, but it's great fun designing the ships. You can arrange the displays so that they're most convenient for your needs – for instance, you can keep regularly referred-to gauges close together. When designing you can't overlap different windows, and the ship has to come within weight and cost limits – so you can't have everything with knobs on too.

All the fancy trimmings are excellent additions to a game packed with action. For the first few plays, just get out on a mission and marvel at the fast, hectic, violent and noisy battles. After plenty of explosions, laser blasts and terminal collisions you can start to worry about the strategy, but you'll never lose the thrill of combat. **BW**

SECOND OPINION

If you thought the first two Tau Ceti editions were out of this world, then Academy is definitely from another galaxy. Faster, harder, larger with more aliens and missions, it's a fabulous game. The graphics are so much more detailed and colourful: the sound is satisfyingly loud. It is even possible to define your spacecraft and instrument panel. Fantastic! **RpM**

GREEN SCREEN VIEW

Dingy but playable.



FIRST-DAY TARGET SCORE
Complete 1 mission

SCANNER: optional, gives a short-range scan around the ship, crucial for quickly identifying and turning to face an attacker.



The Verdict

GRAPHICS 93%
- Fast-moving, solid graphics.
- Excellent explosions.

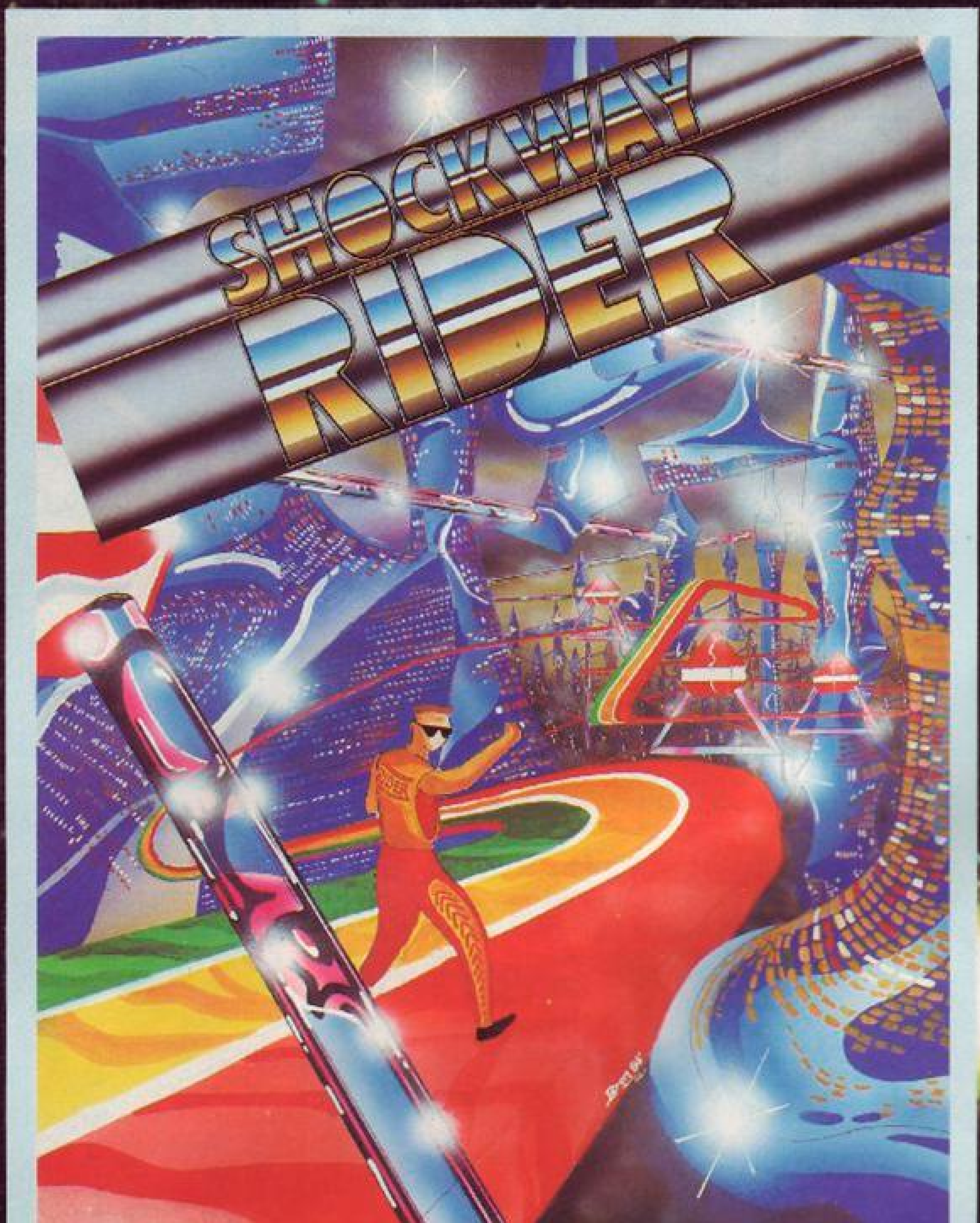
SONICS 52%
- Reasonable effects, particularly in a pitched battle.

GRAB FACTOR 95%
- You can get out and blast straight away.
- Lots of options to investigate.

STAYING POWER 94%
- 20 very tough and varied missions.
- If you didn't like the predecessors, well...

AA RATING 94%
- Great ability to design ships and display.

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KILLER RING

Ariolasoft, £7.99 cass, joystick or keys

Killer Ring is a subtle variation on the Phoenix stand-alone arcade game: after shooting waves of aliens, you must shoot your way through a barrier to kill the "wotsit".

In *Killer Ring*, the wotsit is an alien being surrounded by a force-field. To kill him, you must shoot through its base – the rest of the field is impenetrable. This base covers a rotating shield, which can also be breached by successive shooting. Once through the rotating shield, you must shoot the green alien's red heart.

The preceding levels, all six of them, take the usual form of alien cremation. Levels one and two give you floating bats to fire at. Three and four have an extra distraction: a group of flying saucers flitting about the screen bombing you. The floating bats are replaced by rotating spheroids which you can kill only by shooting through one of the two gaps in their shield. The last two levels take the form of moons oozing yet more bats – this time in magenta!

SECOND OPINION

This is a game that's extremely satisfying – or rather, relaxing – to play after a hard day's work. You just sit there and shoot. It doesn't matter that you can easily get high scores or even that there are only seven levels – Killer Ring is enjoyable and just the tonic when a mindless task is all you are capable of. **RpM**

GREEN SCREEN VIEW

Just as satisfying in green.

Your ship, as the title suggests, is a ring – very vulnerable with little shielding.

Amazingly, *Killer Ring* has a funny addictive quality – initially. The interest wanes as quickly as the moons in levels five and six. The game's biggest detraction is its lack of difficulty. The writers tried to compensate this by including a "Difficult" mode. But having completed the Easy mode, the Difficult mode gave me no real trouble.

Graphics are good and the characters are well defined. Sound effects are also above average, and the music is very good. In conclusion, a pretty game – pretty indifferent! **CB**



FIRST-DAY TARGET SCORE
15,000

The Verdict

GRAPHICS 73%
- ☐ Bold, colourful graphics.
- ☐ Spectacular explosions.

SONICS 67%
- ☐ Title music is entertaining.
- ■ Sound-effects can be grating.

GRAB FACTOR 62%
- ☐ Colour and sound will appeal.
- ☐ So will aroma and taste: comes complete with a Killer Ring Cupcakes recipe!

STAYING POWER 49%
- ■ Only seven levels to beat.
- ■ Originality is not the name of the game.

AA RATING 61%
- ☐ Excellent game to unwind with.
- ■ No lasting challenge.



WIBSTARS

A'n'F, £8.95 cass, joystick or keys

You play the part of Billy Wibstar the entrepreneur. The plot is fairly simple: you have to collect items of computer hardware from the warehouse, chuck them in the back of your van and take them to one of the local wholesalers.

Thankfully, the game is actually a bit more complicated than that. The first part, loading askip with hardware, is a bit farcical in that once you have filled the skip, you must descend a lift, enter a van, and attempt to catch the previously loaded hardware that the skip is dropping down chutes from above you. Complicated, ain't it?

Anyway, once you have done that, you get to drive the van along some roads! Oooh, how exciting! Well, it's not that exciting. The object of this part of the plot is to dodge the debris flying from the doors of the van in front of you. Some of the debris is useful, like disks, cassettes and computers. If you catch these, they increase the stock in the back of your van.

SECOND OPINION

The game concept is a good one but it's let down by substandard programming and badly thought-out gameplay. The graphics reveal that it's a poor conversion from other computer versions. There are too many frustrations to make it enjoyable. Making a profit is more down to luck than judgement. A poor effort. **BW**

GREEN SCREEN VIEW

Very difficult to see in places.



Drive your van, drive you crazy

Once at the wholesaler, you face a complex screen consisting of platforms, conveyors and lifts. You must now take your stock out of the van and attempt to direct it up to the top of the screen, where a big hand comes out and grabs it.

When you have delivered, or have destroyed all the stock in your van, you must get back into it. If, overall, you have made a loss, the game ends. But if you have made a profit, you can drive back to the warehouse to stock up again.

Scoring is in the form of profit. Every item you sell increases your score, and every time you fail to avoid debris thrown from the competitor's van, your profit goes down. This is to pay for repairs.

I didn't like this game at all. The graphics are so blocky-tacky, and the movement is a block at a time. Sound is best forgotten. A very poor production, and a definite waste of money. **CB**

FIRST-DAY TARGET SCORE
Make a profit.

The Verdict

GRAPHICS 46%
- ■ Very blocky.
- ■ Little use of colour.

SONICS 13%
- ■ No sound other than an insignificant purr from the van.

GRAB FACTOR 45%
- ☐ Delivering at the wholesaler is quite addictive.
- ■ Very difficult to make a profit, so games are short.

STAYING POWER 33%
- ■ Boredom and frustration will win eventually.

AA RATING 37%
- ■ If computer distribution is like this I'm glad I'm a reviewer.

BOMBJACK II

Elite, £8.95 cass, £14.95 disk, joystick or keys

The return of the leaping lunatic who was first seen jumping all over the screen picking up bombs. Now he's back and instead of grabbing bombs he's after a much more lucrative prize: bags of treasure. Jack is still able to produce prodigious leaps but in a much more controlled environment.

You've got to get through over 40 screens, collecting 10 bags of treasure on each one. The screens are made up of a number of platforms floating around in the air, on which the bags are placed. Also occupying some of the platforms are reptiles who shuffle back and forth along them. In the background are some superb pictures that play no part in the action but look great. They include Stonehenge, the Taj Mahal and Sydney opera house, all delightful views.

You make your way around the platforms by jumping, but you can't just jump into thin air. You can jump up or down to platforms above or below you, and you automatically jump when walking off the edge of a platform if there's another one at the same level to jump onto. This is a very easy system to get used to and allows you to zip round the platforms grabbing treasure at a great pace.

After you've picked up the first bag of treasure another one will start to flash. If you can pick up all the flashing bags, a bonus life is awarded. If you manage only six, seven or eight flashing bags then you still gain healthy bonus points. This is one of the game's most interesting points because the platforms are arranged so that it gets more and more complicated working out how to get to the bags in the correct sequence.

If you thought you were going to get away with it being that simple then you've got aliens who are going to make life hell for you. If you arrive on one of their platforms they'll try to push you off it, losing you a life. You can push back of course, but you've got only limited strength available to do it with. You can also stab the aliens, but this has little effect.

At first dealing with the aliens is easy but as time passes and you struggle to get the bags in the right order, the aliens mutate into stronger and faster-moving forms. Eventually they can start jumping around the platforms themselves and at great speed. This poses you a dilemma on every level: do you go for the bags in the right order and risk the aliens getting you, or do you get them quick and forsake the bonus score while they're still weak?

It's a lot better than its predecessor, but you'll get the chance to find that out for yourself because *Bombjack* is given away free with it. The game in itself justifies the price, but with the original thrown in as well you just can't go wrong. The graphics are superb, the gameplay fast and addictive – and surprisingly, you'll even have to think about things.

BW

SECOND OPINION

Bombjack *was good;* Bombjack II *is brilliant. Colourful, noisy, challenging, exciting – it's got all the ingredients of a winner. Forty levels of joystick-wrenching gameplay with interesting graphical backgrounds (and bags of gold to collect). You even get* Bombjack *(the original) free – don't pass this game by!*

RpM

GREEN SCREEN VIEW

No problems!

AA RAVE

FIRST-DAY TARGET SCORE

30,000

The Verdict

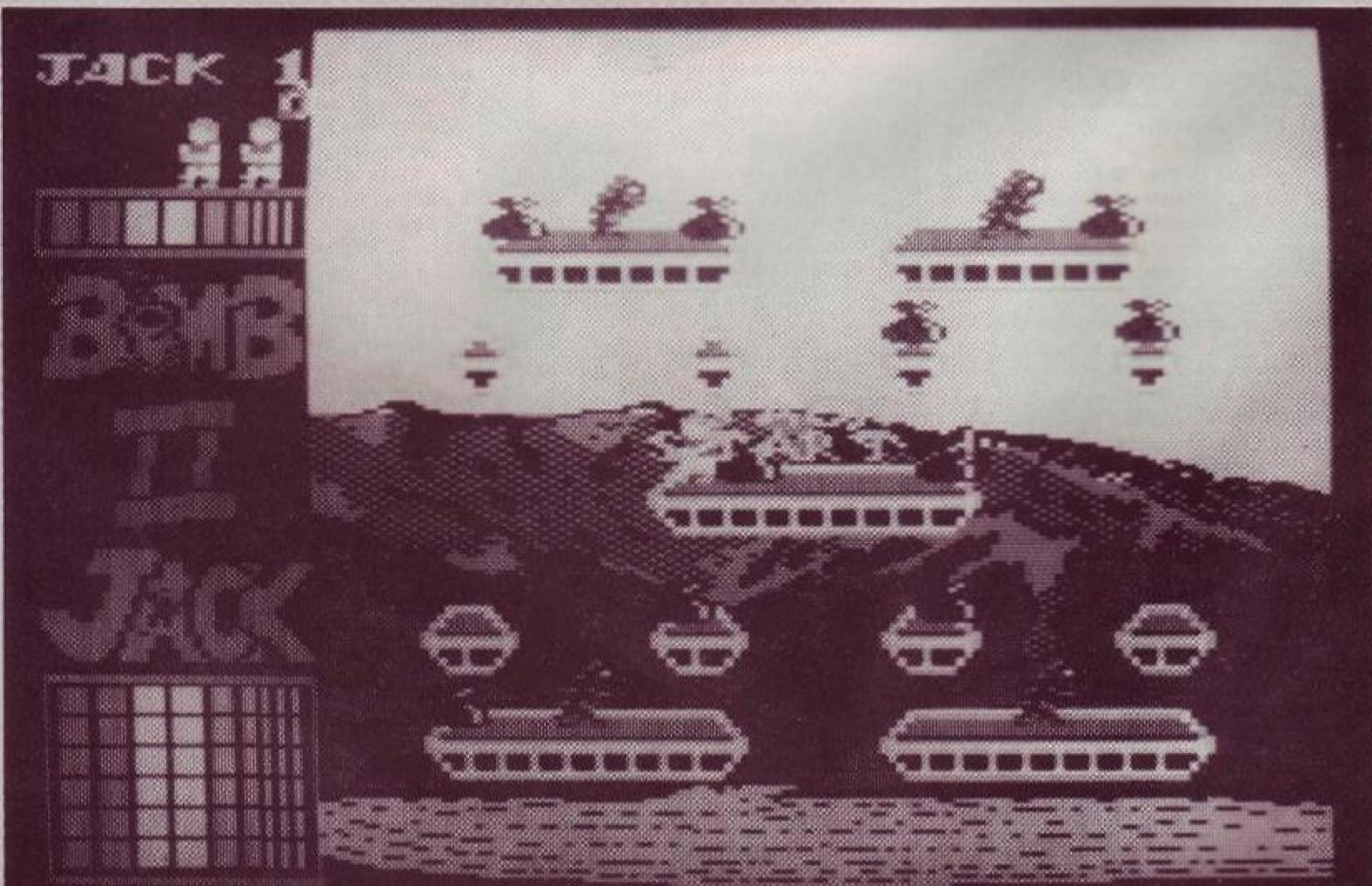
GRAPHICS 89%
- ☐ Superbly detailed backgrounds.
- ☐ Colourful, detailed characters.

SONICS 47%
- ■ Just a few sound-effects.

GRAB FACTOR 90%
- ☐ Working out how to complete levels is enormously addictive.
- ☐ Great control method and easy to play.

STAYING POWER 88%
- ☐ Lots of complicated levels.
- ■ The addiction will wear off after a few days.

AA RATING 91%
- ☐ *Bombjack* given away free – you can't lose.





MGT

Loriciels, £9.99 cass, £14.99 disk, joystick or keys

MGT is a futuristic arcade adventure from the French software house Loriciels, in the same format as the *Knightlore* series of games. You control the MGT – MaGnetik Tank – around the Crystal Palace. The palace's many rooms are frozen because its life-support system broke down when infiltrated by alien bacteria.

There are two types of door connecting the rooms. The first type is an unguarded door, through which you may travel at any time. The other type is protected by a laser forcefield. To disengage it you must shoot the control panel. There are different types of control panels, and you must shoot the one with the same symbol as displayed above the door.

Inside the rooms are raised ice blocks. To get onto these, position the MGT over the lift pad and press Fire. The longer you fire, the higher your MGT floats. Release the button and your MGT gently floats back down to the ground.

In some rooms roam droids, attempting to block your way. Contact with certain droids can be fatal. This is bad news because you've got only one life.

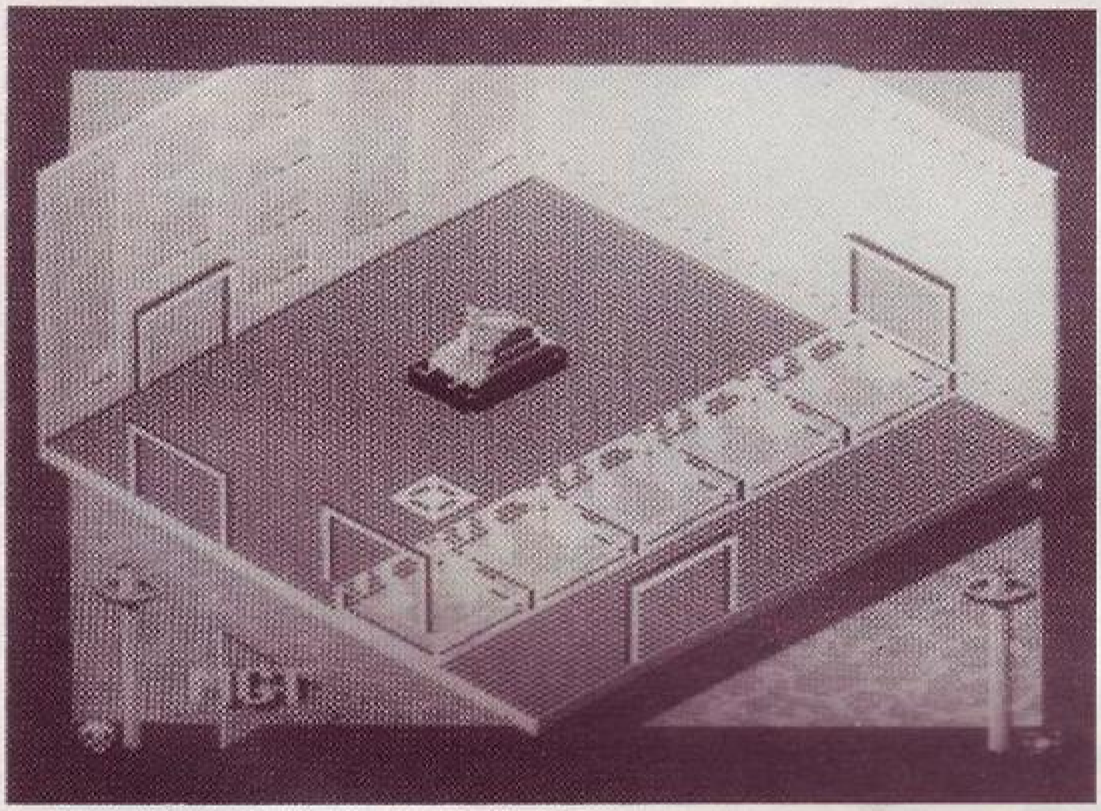
This game has no more than average graphics, and the occasional sound is poor. The task to be completed is difficult and will take a long time. I personally think the task is too hard, with too few incentives along the way. The *nouveau musique* is delightful, but has little variation. *MGT* has little lasting appeal and is poor value for money. **CB**

SECOND OPINION

I disagree with CB on this one. I liked it. The sliding or inertia of the tank is a novel feature, and although the puzzles arrive early on I don't think they're too tough. My only disappointment is the similarity to Bactron, but this is mostly graphical and not in the gameplay. Has some nice features and problems that are worth a look. **BW**

GREEN SCREEN VIEW

The icy rooms are cold and clear.



FIRST-DAY TARGET SCORE

Explore 15 rooms.

The Verdict

GRAPHICS 71%
- ☐ Good 3D representation and fast sprite movement.
- ■ Little variation in characters.

SONICS 53%
- ☐ Very nice *nouveau musique*.
- ■ Sound-effects lack any excitement – even at 50 watts.

GRAB FACTOR 57%
- ☐ Initial aspects are intriguing.
- ■ Not enough easy locations to view.

STAYING POWER 68%
- ☐ A lot of locations to look through.
- ■ Too difficult to get anywhere.

AA RATING 64%
- ■ Has similarities to *Bactron*.

WARLOCK

The Edge, £8.95 cass, £14.95 disk, joystick or keys

This looked a little familiar at first, and indeed it does have a graphic similarity to the Edge's last game *Palitron*. That's where the similarity ends, unfortunately, because *Palitron* was a better game. Not that *Warlock* doesn't have plenty to offer.

The game takes place in an isometric-3D castle where you are the evil warlock trying to repel the forces of good by finding your orb of power. If you can find that you can go and do some serious GBH on the Lord of Light who's causing all the good guys to pop up in your castle.

You have to descend to the caves below the castle to find the orb and then return to the top of the castle where the LoL is. You can be in one of three guises: the warlock with lots of magic power but no might, a goblin with a bit of both, or a troll with a lot of might but no magic. Each is suited for different sections of the castle.

You get between floors using trapdoors and pentagrams and walk through doorways to change screens. On the way there are many objects and obstacles. Objects include food for strength, magical items and keys to unlock doors. The many adversaries include fair maidens, gallant knights and monks, all of whom chase you. There are static hazards as well.

SECOND OPINION

I always thought fair maidens were present purely for rescuing or whisking away. Not so in Warlock – they kill you. Ah well, I'll just have to look elsewhere. This is a pleasant game in every respect: graphics, sonics and gameplay are top-class. There are some humorous touches you will undoubtedly encounter – suffice to say that in certain circumstances there'll be laughter above you. **RpM**

GREEN SCREEN VIEW

Some rooms lose definition.



The good, the bad, and the attractive graphics

The gameplay is fairly simple stuff, complicated only by the changes of appearance and powers. What is annoying is the control: it can be awkward, particularly in tight spots. An excellent game to look at but not that inspiring to play. **BW**

FIRST-DAY TARGET SCORE

20,000

The Verdict

GRAPHICS 78%
- ☐ Great use of colour to create atmosphere.
- ☐ Detailed, interesting characters.

SONICS 58%
- ☐ Title tune and some nice effects.

GRAB FACTOR 66%
- ☐ Addictive to map and explore.
- ■ Control is awkward in places.

STAYING POWER 64%
- ☐ Plenty of castle to get through.
- ■ Mostly exploring and little adventuring.

AA RATING 64%
- ☐ Nice changeling feature.
- ■ Otherwise lacks originality.

FEUD

Bulldog/Mastertronic, £1.99 cass, joystick or keys

Yet another label from Mastertronic, perhaps trying to disguise its consistently large volume of releases. This first title is a battle between two brothers who also happen to be wizards. Naturally when these guys fall out you can expect fireworks. You play Learic, one of the wizards, and have to battle Leanoric to the death. Now is that any way for brothers to behave?

The battle takes place in a very picturesque landscape, where you shuffle around in long robes. At the start you're standing behind your cauldron and can then wander off to explore the woods, river, houses, graveyard, walls, plants and other scenery. Most of this is just to create a maze that you've got to learn your way around.

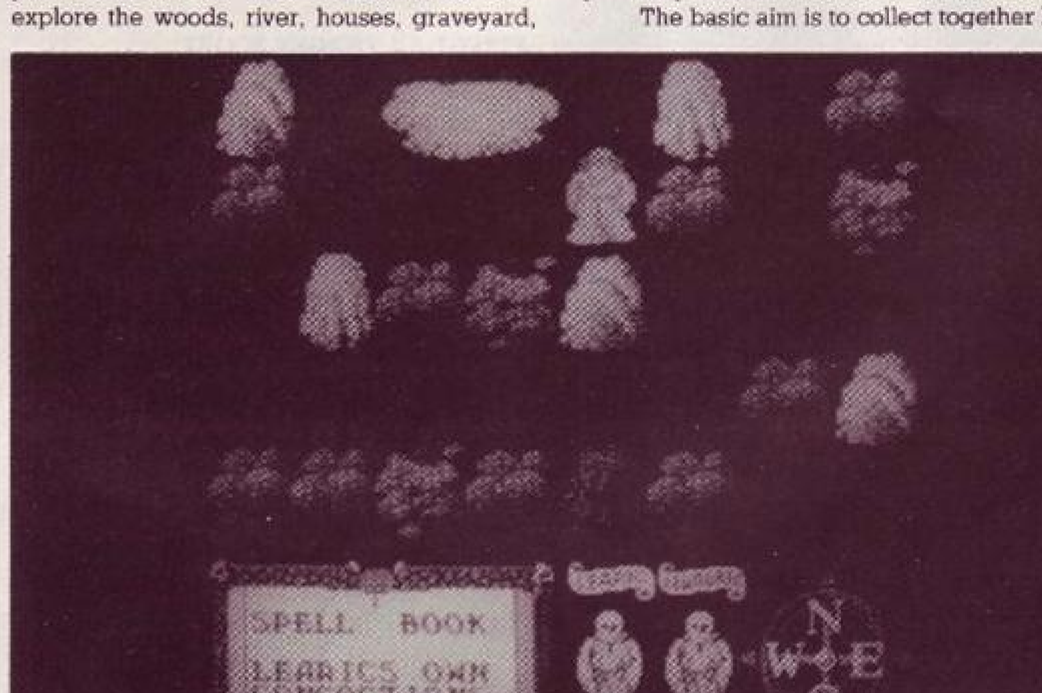
The basic aim is to collect together herbs to make spells which you then cast at the other wizard to destroy him. The herbs are found dotted around and have to be picked up and returned to the cauldron to mix the spells. It takes two particular herbs to mix a spell.

There are 12 spells. They can be offensive like fireball and lightning, or defensive like protect and invisible. There are other inhabitants of the village. You can also cast spells on them, but mostly they just get in the way. One guards a garden, though, which contains many of the herbs.

The graphics are good, and so is the game concept. What is lacking is action. You spend a lot of time searching for herbs followed by short bursts of spell-casting activity. It's a difficult long-term task that will provide plenty of enjoyment but justs lacks some excitement. **BW**

SECOND OPINION
Fabulous graphics, above-average sound effects and a £2 price tag should have made this game a winner. Lack of gameplay, dearth of exciting joystick-bending action and want of 'wannanothergo' material letFeud down. Still, it's a new label and only two quid.

GREEN SCREEN VIEW
All is visible.



FIRST-DAY TARGET SCORE
10%

The Verdict

GRAPHICS **70%**
☐ Well-designed, colourful scenery.
☐ Good animation for characters.

SONICS **60%**
☐ Pleasant title tune.
■ Very little in-game sound.

GRAB FACTOR **58%**
■ An awful lot of just wandering around may put you off.

STAYING POWER **71%**
☐ Once you know the game's layout and start battling, it gets much more interesting.
☐ A very tough wizard opponent.

AA RATING **70%**
☐ Original concept.

AGENT ORANGE

A'n'F/Argus, £8.95 cass, joystick or keys

Don't worry: this isn't a tacky game about the Vietnam war or anything like that, it's well and truly removed from reality, in fact. You play an intergalactic flying farmer (we've a few of those round here at closing time on a Friday) out to make some cash and to find a deadly alien weedkiller – hence the name *Agent Orange*.

You start by landing on a planet also occupied by alien farmers. You can launch one of your ships to battle the aliens and plant your crops. The planet surface scrolls horizontally and is viewed from above. You are armed with bullets;a number of hits on an enemy craft will destroy it. The aliens can shoot back. You have only a limited number of ships, and initially their shielding is very light.

You also have a limited number of seed pods that can be planted in clear areas of the planet surface. These must cope with competition from the alien crops and the natural vegetation. Destroy an alien and it leaves behind a seed pod which you can pick up and use. Once all the aliens on a planet are destroyed you can get down to harvesting your crop.

You can destroy the alien crop, but not the natural vegetation, and harvest your own crop to return to the mothership. After this is loaded up you can return to home base. Here you can buy better ships if you make enough money and then progress to the next planet. The aliens get tougher and come in greater numbers as you try to get to the eighth planet, where the weedkiller you need to collect is found.

The graphics are detailed but once again A'n'F has failed to use the CPC's glorious colour capabilities. The gameplay alternates between blasting and harvesting and is fairly addictive. **BW**

SECOND OPINION
I enjoyed Agent O. The detail is phenomenal but, badly let down by lack of colour, this makes playing the game rather a bind: it's difficult to distinguish between buildings and alien ships. The saying "If it moves..." would be apt if you could see anything move! Still, pounding madly at the Fire button is fun. **RpM**

GREEN SCREEN VIEW
Clearer in green.



Aye up, farmer Giles, looks like weather's closing in

FIRST-DAY TARGET SCORE
5,000

The Verdict

GRAPHICS **61%**
☐ Detailed ships and background.
■ A'n'F's usual very-mono outlook on things.

SONICS **55%**
☐ Nice title tune.
■ A few pitiful in-game effects.

GRAB FACTOR **71%**
☐ Blasting and harvesting combine well.
☐ Good ideas like seed pods, growth cycle, trading ships.

STAYING POWER **57%**
■ Both stages become very repetitive.

AA RATING **65%**
■ Nice idea but where's the colour and the depth?




rama rama
Can you escape its slimy grasp?
Spectrum cassette £7.95
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Commodore cassette £8.95
Amstrad disk £14.95
Commodore disk £12.95

SENTINEL

Firebird, £9.95 cass, £14.95 disk, keys only

This is not a game that can be described as ordinary. It's an original concept that has created a game with 10,000 landscapes and gameplay unlike anything you've played yet. The aim of the game is simple – in each of the 10,000 landscapes you have to depose the Sentinel.

Each landscape is based on a grid system, the blocks forming slopes and plains. You control a robot who can only stand on flat surfaces and not slopes, and starts the game at one of the lowest points on each landscape. The Sentinel starts on the highest point and you have to get above it in order to depose it. However you can't actually move.

You get around this seemingly impossible drawback by creating another robot which you can then transfer into. This seemingly cumbersome method of getting around does in fact work extremely well and requires strategic and rapid thinking. Creating a robot requires energy – and this is the key to the whole game.

Each landscape has a limited amount of energy in it in the form of trees, boulders and robots. These can all be created or absorbed by you. At the start of the game the landscape is dotted with trees which you can absorb to boost your energy. You can then build piles of boulders and put a robot on top, raising your position in the landscape. Having created a robot you transfer to it – and reabsorb the robot you just left.

The only problem with this happy state of affairs is that as soon as you affect the energy balance of the land, the Sentinel will spot this and begin to turn towards you. Once it is facing you it starts to drain your energy. A hasty move is required if you're going to survive. If you haven't got enough time or nerve to make a controlled exit you can always hyperspace to a random square, but that will also cost energy.

The basic energy unit is the tree; a boulder is worth two trees and a robot is worth three. When the Sentinel absorbs energy he redistributes it as trees on the landscape. If you transfer between robots while being drained you can look back to see the Sentinel turn the robot shell into first a boulder and then a tree.

Your robot can scan around the landscape, much like the Sentinel, but much faster. You can also move the camera view up and down to get a complete picture of the surroundings. The higher you get the more impressive the view becomes, for more of the landscape comes into sight.

If you manage to get above the Sentinel so that you can see the square he stands on, you can absorb him. All you've got to do then is transfer onto his square and hyperspace. This will give you the code number to another, more difficult, landscape.

Later landscapes introduce another development: meanies. These are created by the Sentinel from trees if it can see you. They don't drain your energy but force you to hyperspace to another spot.

SECOND OPINION

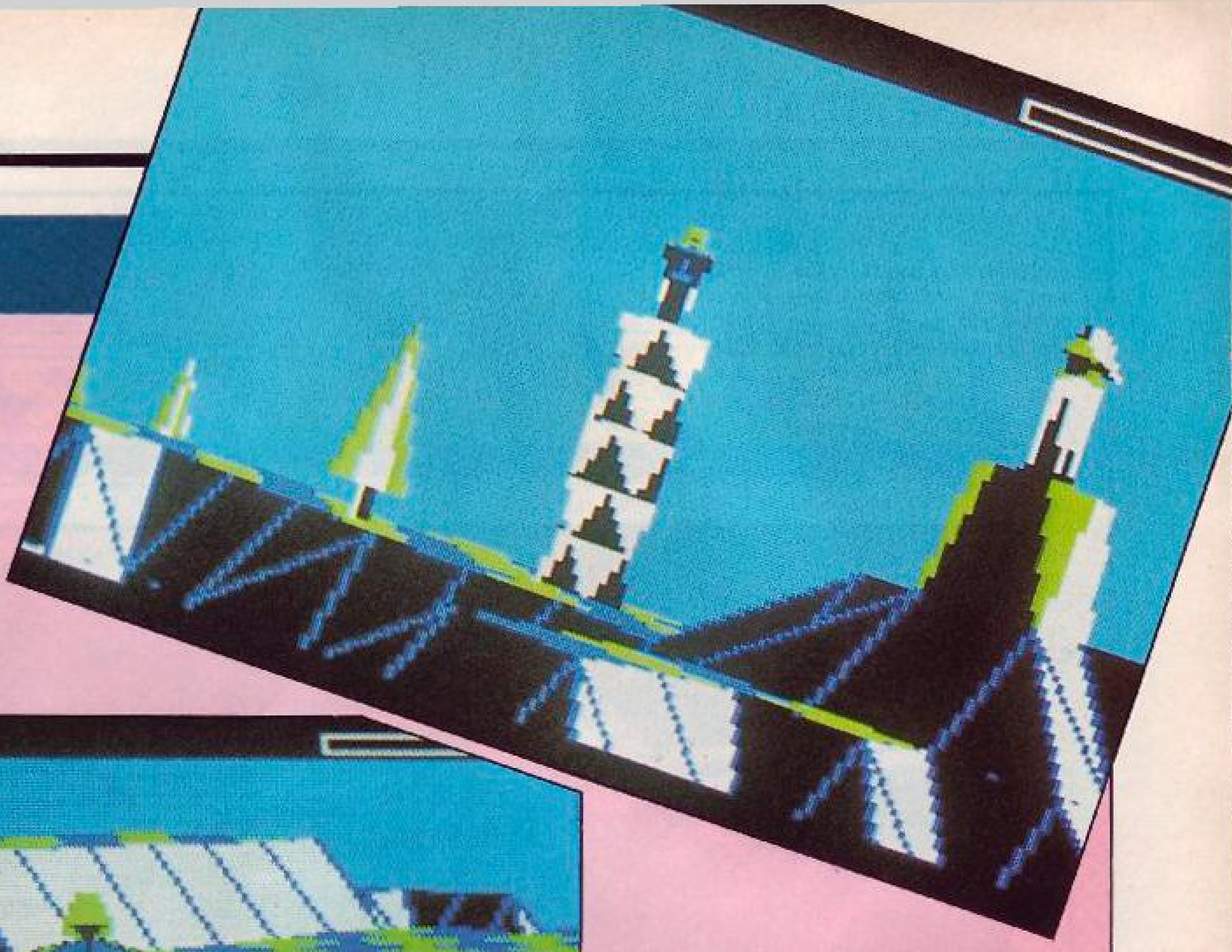
Sentinel *is rather different from the run-of-the-mill software produced of late. It has thousands of locations thanks to fractal graphics. Although not all sites are particularly stunning, original gameplay and sheer size will mean many late nights.* **RpM**

GREEN SCREEN VIEW

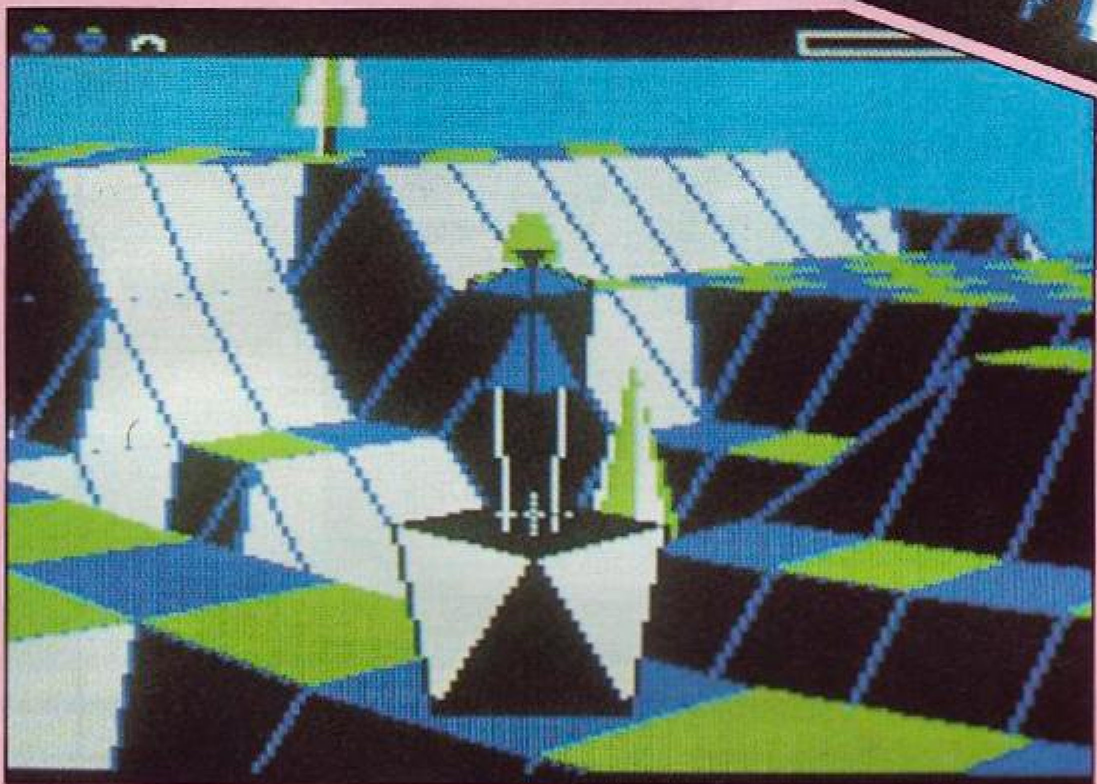
Perfectly clear.



4. You've absorbed the Sentinel and created a robot in its place. All you have to do now is transfer to it and hyperspace to get the code for another landscape.



1. A robot has been created on top of a pile of boulders and stands above the Sentinel.



2. You transfer to the robot on top of the boulders and look back at the previous robot shell.

Sentinel is a totally original game – a marvel of programming, it deserves many plaudits. It requires quick thinking and a tactical mind to get far. At first you may find things confusing, but once you've grasped how to move around and gain height you should feel more at home. The landscapes vary widely and present many different problems but look superb. My only gripe is that the action can become repetitive despite the immense number of landscapes.

This is a game you will either love or hate. Personally I think it's just the sort of thing the software industry needs to experiment with more. It's worth getting just for curiosity. Most people will get hooked working through the landscapes. **BW**

FIRST-DAY TARGET SCORE
Depose first Sentinel

The Verdict

GRAPHICS 90%
☐ Landscapes look delightful.
☐ Good use of colour and object design.

SONICS 25%
■ Not a lot.

GRAB FACTOR 92%
☐ You'll marvel at its originality.
☐ Absorbing gameplay.

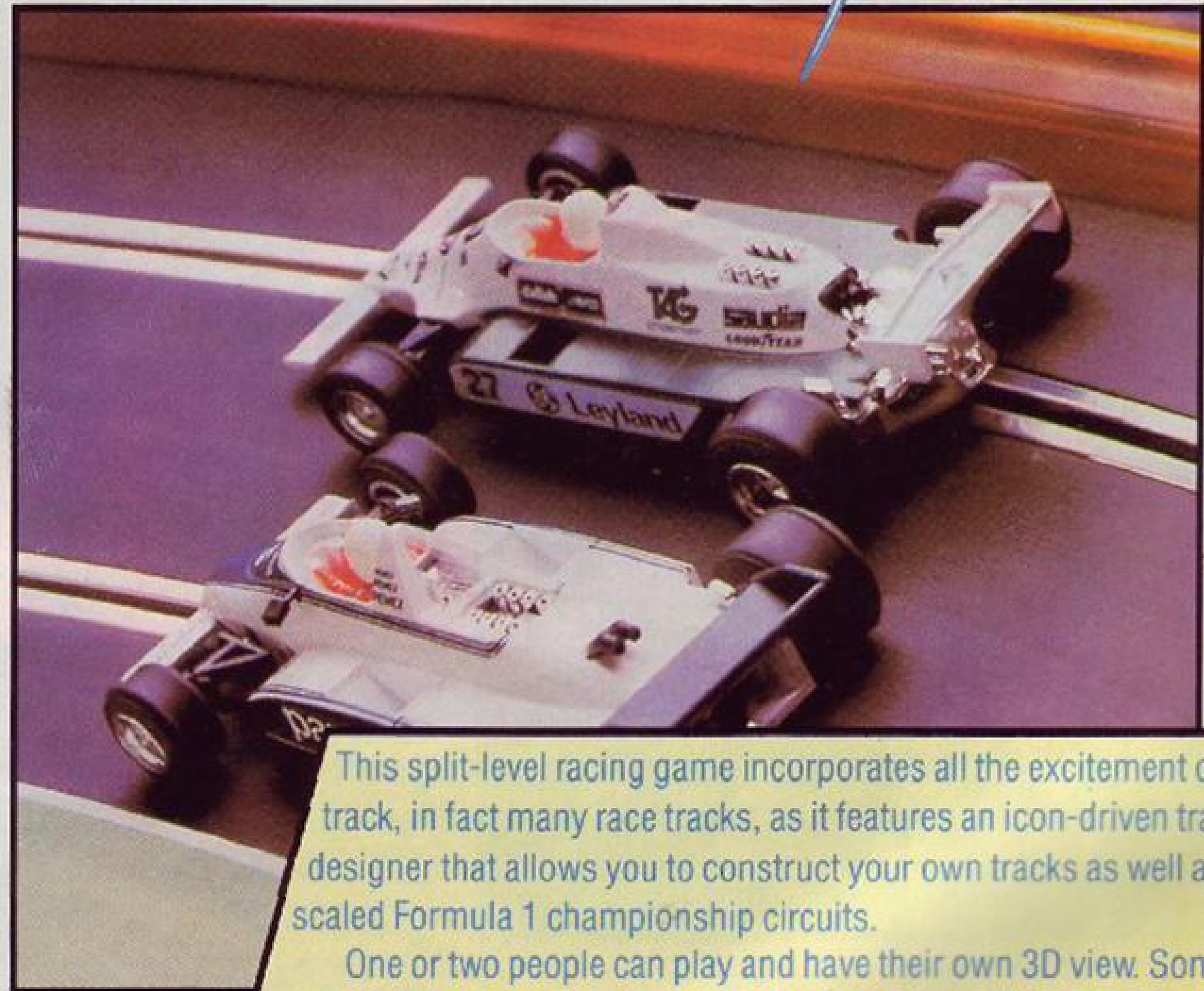
STAYING POWER 88%
☐ More landscapes than you'll ever need.
■ Might get a bit repetitive.

AA RATING 90%
☐ Originality like this deserves a reward.



3. You turn to face the sentinel and can look down on his square – victory is at hand.

SCALEXTRIC®



This split-level racing game incorporates all the excitement of the race track, in fact many race tracks, as it features an icon-driven track designer that allows you to construct your own tracks as well as select scaled Formula 1 championship circuits.

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Leisure Genius

NINJA

Mastertronic, £2.99 cass, joystick or keys

Ninja is another martial-arts game (surprise, surprise). This one, however, strays from the normal path of righteousness by adding a princess to be saved! You must save "Princess Di-Di", the pearl of the Orient, who was taken prisoner by the evil Master of the Palace of Pearls.

You start off at the bottom level with a few opponents to fight – never more than one at a time. You can pick up deathstars (*shuriken*) to throw at your opponents. Four or five chucks of these will render your opponent dead. He falls into a glob of greasy mucus. As well as deathstars, you are equipped with a "slashing" Samurai sword.

> **SECOND OPINION**
>
> *At first sight this seems a very playable game. But that's deceptive because the action is too difficult and repetitive. With a little more tweaking this could have been a good game – but as it is, I don't care for it. Doubtless it will sell well but I suspect there will be some disappointed people.* **BW**
>
> **GREEN SCREEN VIEW**
>
> *Good choice of colours.*

The movements available are jumping, punching, kicking and hitting. You need not kill all the enemy on each level to progress to the next. Simply find the room with a hole in the roof and jump when directly beneath it.



Opponents get meaner as you get higher. Each progressive level adds an opponent to each fight.

Along the way, as if killing a few hundred ninja warriors weren't enough, you must pick up idols which Princess Di-Di has dropped to test your worth. What's with this woman? Does she want to be rescued or not?

Well, all right, for the price, it's not bad, but I'm fed up making allowances for budget games and really don't care for it. The graphics are very plain, and the sound lacks volume and realism. The game is difficult, perhaps too difficult. You know those ninja films where every character's mouth moves for about a second either side of the speech? Well, this game emulates that very well: you press the keys, and a second later your bloke moves. Ah well, it is only £3. **CB**

FIRST-DAY TARGET SCORE
Look at level four.

The Verdict

GRAPHICS 52%
- ☐ Characters are well depicted.
- ■ Boring use of colour.

SONICS 31%
- ■ Thwack, splat.

GRAB FACTOR 62%
- ☐ Fighting and exploring at first interesting.
- ■ Quickly gets repetitive.

STAYING POWER 51%
- ☐ Completing the whole game is very difficult.
- ■ Getting far at all is too difficult.

AA RATING 64%
- ☐ Not many budget martial-arts games around.

WEST BANK

Gremlin, £4.99 cass, £9.99 disk, joystick or keys

There have been attempts made before to establish a "mid-range" price for software at about the £5 mark. Previously they've failed, but with prices soaring at a discouraging £10 the time may be ripe. Personally I hope it succeeds because this is a good game and I've always felt that £10 for a cassette game and £15 for a disk is far too much – it actively discourages people from buying software.

Enough preaching. The game is an arcade test of reactions and observancy. You are in charge of a bank in the Wild West and have to protect it against the many wicked would-be robbers. However there are also innocent civilians merely trying to put money into the bank.

> **SECOND OPINION**
>
> *This has pleasing graphics and enough gameplay to justify its price. I became more frustrated the further I proceeded: the game gets harder but the tasks remain the same.* **RpM**
>
> **GREEN SCREEN VIEW**
>
> *Clear.*

Three doors open and close on the screen, revealing one of the motley characters. You'll need to become familiar with each one and watch behaviour patterns. Some deposit money; others shoot quickly. Some you must watch carefully: they may draw their six-shooters or just pass quietly on. Two nasty pieces of work will even barge in on an innocent character.

You have to collect money at each of twelve doors, then you can pass on to the next level and more, faster characters. At the end of a level you have a shoot-out with three characters. If at any stage you shoot an innocent character or get shot yourself you lose a life.

The graphics are excellent and the gameplay quite addictive and demanding. Definitely worth the price. **BW**

The Verdict

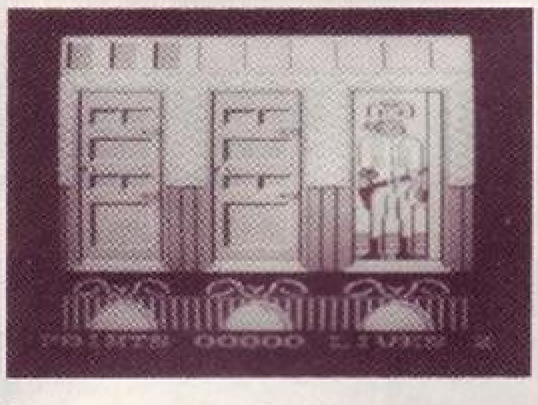
GRAPHICS 72%
- ☐ Delightfully drawn and colourful characters.
- ☐ Good animation.

SONICS 63%
- ☐ Western tune plays throughout game.

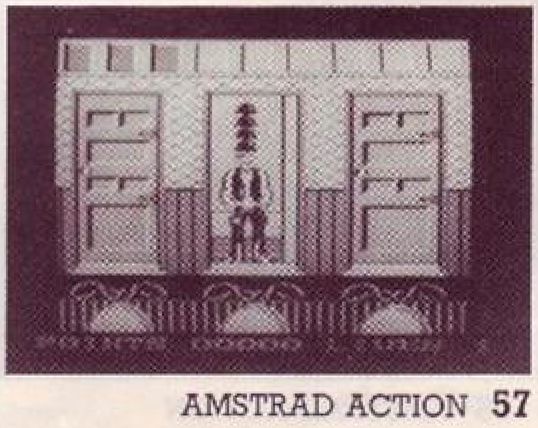
GRAB FACTOR 75%
- ☐ Fast action needing sharp reactions.
- ☐ Deceptively easy to start with.
- ■ Very frustrating to shoot someone accidentally.

STAYING POWER 67%
- ☐ As the game continues and concentration slips, it gets harder and harder.
- ■ Lacks variety so it will lose interest.

AA RATING 74%
- ☐ Great price – hope this new bracket succeeds.

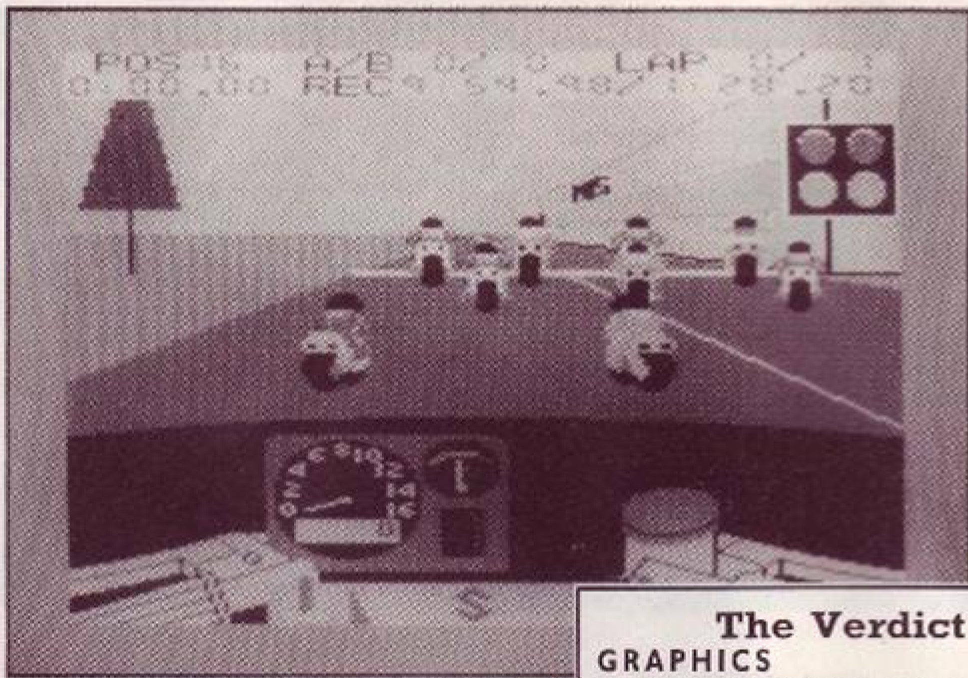


To shoot or not to shoot? That is the question.



TT RACER

Digital Integration, £9.95 cass, £14.95 disk, joystick or keys



This bike simulation uses the unusual method of connecting two computers through serial interfaces so that two players can play simultaneously.

There is an extensive menu of options. The first is to enter your initials. Second, you can choose the engine size of your bike, thus giving the class of race in which you will compete. Then there is Racing Competition, where you choose the skill level. This controls the speed of the computer-controlled bikes and the ease with which you will crash. Fourth is the track selection, where you may choose one of twelve circuits from around the world. Next you can choose whether you ride the tracks in listed order, or in the order in which they would be during a proper Grand Prix season. You can also choose whether to practise or compete.

The seventh option allows you to choose the number of players. However, unless your mate brings around his computer (or you have three miles of cable lying around) and you've both splashed out £50 on an RS232 serial interface, you will only be able to play single-player. You can also choose automatic or manual gears, and whether the display shows the road or your racing instrument.

Each race involves 16 riders and can be saved whenever you stop. During racing or practice, you can stop at the pits to refuel or change tyres.

Movement is very slow and jerky and I really dislike the moving horizon, the angle of which changes when you bank at a corner. Once again, the sound is the same *brrrrrerrr* you always get in racing games.

But if you want a bike-racing game, this is the better of the two in this issue by quite a long way, mainly due to the extensive options allowed. **CB**

SECOND OPINION

Despite the jerky graphics I found this an enjoyable simulation. The key lies in its attention to detail, giving you more feel of realism than 500cc GP. The computer opponents are more interesting and provide a reasonable challenge. It's not too convincing deciding when you crash, but that's just as well because it usually lets you get away with murder at high speeds. **BW**

GREEN SCREEN VIEW

The road ahead is clear.

FIRST-DAY TARGET SCORE

Complete one circuit.

The Verdict

GRAPHICS 67%
- □ For a racing game, the bike depiction is good.
- ■ Very jerky and lacks detail.

SONICS 37%
- ■ Very standard and unexciting revs and crashes.
- ■ The music is mediocre.

GRAB FACTOR 71%
- □ With so many options there's a lot of initial appeal.
- □ Very easy to drive.

STAYING POWER 59%
- □ As with all racing games, there are always best times to beat.
- ■ Otherwise it lacks much challenge.

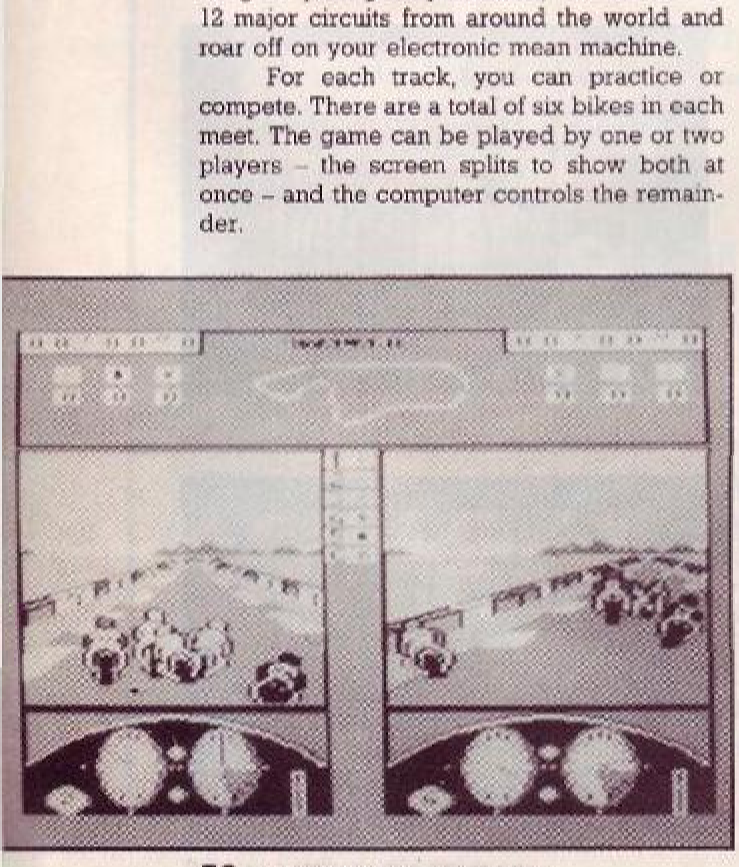
AA RATING 64%
- □ The best Amstrad bike simulation so far.

500cc GRAND PRIX

Loriciels/Activision, £9.99 cass, £14.99 disk, joystick or keys

Drag on your greasy leathers, choose one of 12 major circuits from around the world and roar off on your electronic mean machine.

For each track, you can practice or compete. There are a total of six bikes in each meet. The game can be played by one or two players – the screen splits to show both at once – and the computer controls the remainder.



Playing controls include manual or automatic gear change. The bike has six gears and neutral. Each part of the split screen shows speed, revs and gear selected. Each screen follows its respective rider, which means that sometimes you see your bike on both.

The biggest difference between *500cc Grand Prix* and *TT Racer* – also reviewed in this issue – is the method used to show the bike. In this game you see it from behind, and when you bank left or right at a corner you see the bike bank. *TT Racer*, however, shows the rider's view, and like most flight simulators shows the angle of the horizon changing when you bank at a corner.

I didn't like either of these bike simulations and wonder why there has never been a good bike or car game yet for the Amstrad! Of the two, *500cc GP* is worse. Graphics are very mediocre and sound is the standard boring racing-game brrrrr. **CB**

SECOND OPINION

I usually like two-player games, particularly simultaneous racing ones, but this left me cold. The steering is very awkward because of the oversteer, and the computer bikes don't provide much variety. These control difficulties spoil a graphically very pleasant game. I too preferred TT Racer. **BW**

GREEN SCREEN VIEW

No helmet-visor difficulties here.

FIRST-DAY TARGET SCORE

Complete a circuit.

The Verdict

GRAPHICS 63%
- □ Movement is a lot smoother than *TT Racer*.
- ■ Bike depiction is fuzzy.

SONICS 17%
- ■ Fizzle, spit, pop, pop.
- ■ No music to rave about.

GRAB FACTOR 37%
- □ Easy to get driving.
- ■ Controls suffer from chronic oversteer.

STAYING POWER 54%
- □ Tough to beat computer.
- □ Two-player action is more fun.

AA RATING 42%
- ■ Not as good as *TT Racer*.

AA RAVE

FLYSPY

Mastertronic, £1.99 cass, joystick or keys

This game was written by a total lunatic. This interesting snippet of information is contained in the cassette inlay and refers to Richard Aplin, who is responsible for both the game and its instructions. However, if the game is anything to go by then lunacy is a highly desirable state for a programmer – it's excellent.

You control a helicopter that has to solve puzzles and overcome obstacles in a maze of tunnels, rooms and shafts, in order to ummm... well... you know how these scenarios go. Anyway the idea is to win, right? The playing area is well designed with excellent use of colour, well-defined features, devious puzzles and attractive scenery.

The helicopter is a very advanced little dream machine with lots of capabilities. You don't have to worry about bumping into walls, floors or ceilings with it. As well as flying freely around you can use, pick up and drop objects, get help, look at the game clock, commit suicide, fire a laser and pause the game. It also has gauges to indicate fuel, battery, score, lives, objects carried and a device counter.

There are several types of object that can be picked up including fuel, ammo, telekeys, bombs and oxygen. You can carry only four at once and you also face a weight restriction. Objects have different weights, and if you overload the chopper it will be unable to fly or will ascend very slowly. When and how to use most objects is pure common sense but experimentation as always is still needed.

SECOND OPINION

Excellent graphics, gratifying sound, superb gameplay, magnificent price, lunatic programmer, cute helicopter and centipede as well. What a wonderful game! **RpM**

GREEN SCREEN VIEW

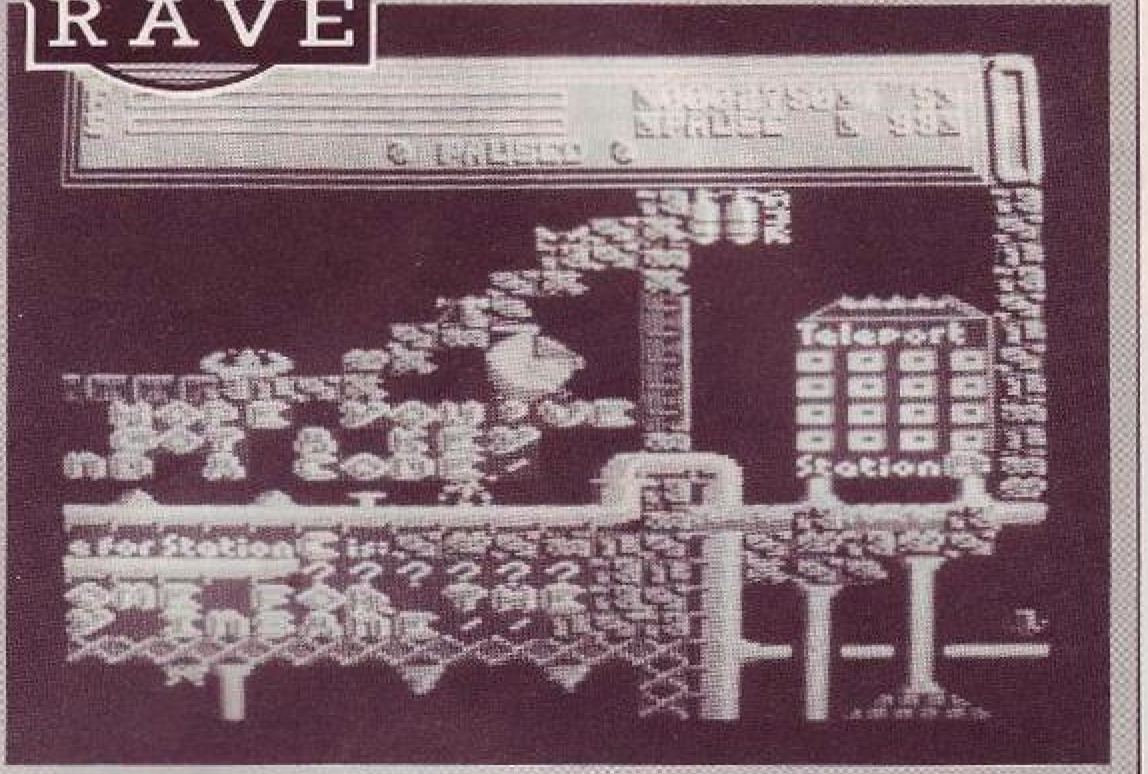
Clear and lovely.

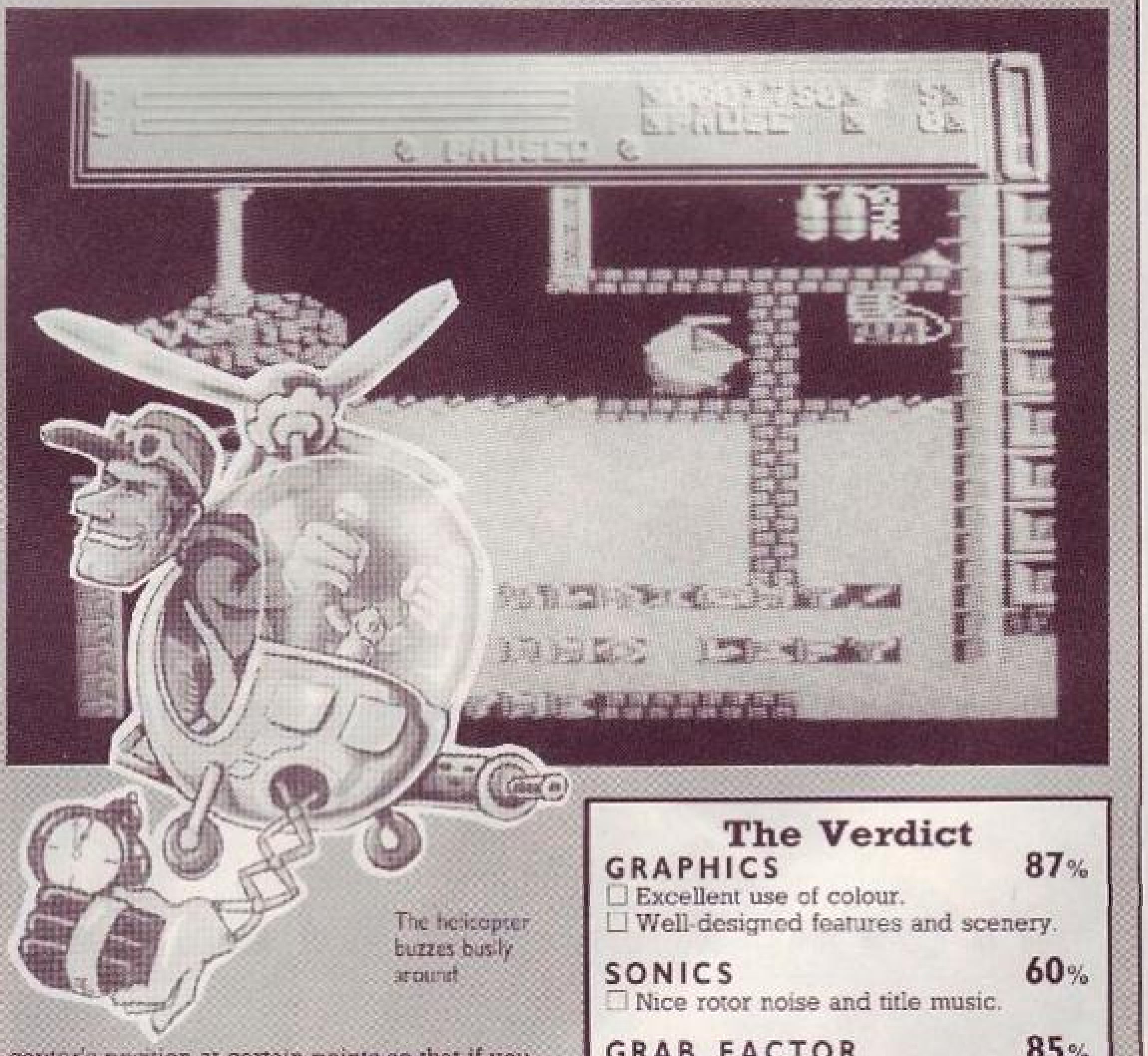
The game is full of dangers that can sap the battery power; a life is lost if it reaches zero. You're also in trouble if you run out of fuel, because then you can't fly. Most of these just have to be avoided, but some can be overcome if you use the right object.

The puzzles consist of locked doors, one-way doors, things that have to be shot, switches to throw, bombs to explode and so on. If you seem to be stuck then just search around for a switch or something to shoot at. Another important feature is the teleport stations.

To teleport you need a telekey and the code of the station you want to go to. These are written into the scenery, along with a lot of other messages from the programmer, and are revealed as you activate certain things in the game. If you get the code correct you enter a sub-game which has to be completed in order to complete the transfer. It's a terrific version of *Centipede*, which could easily be modified into a budget game in its own right.

Another nice feature is a transmodulator that allows you to change an object into fuel, ammo or a battery. There's an option to speed up the action but the slow mode should be fine for most people. You can also log the copter's position at certain points so that if you die you don't return all the way to the start.





The helicopter buzzes busily around

The *graphics* are excellent, even down to the sub-game. The sound includes rotor noise and some wacky-sounding title music. The puzzles and exploration aren't too tough but there's enough complication to keep you plugging away for a good while. A superb budget title that you'll love from the start. **BW**

FIRST-DAY TARGET SCORE
2,000

The Verdict

GRAPHICS 87%
- ☐ Excellent use of colour.
- ☐ Well-designed features and scenery.

SONICS 60%
- ☐ Nice rotor noise and title music.

GRAB FACTOR 85%
- ☐ Easy puzzles to get you into things.
- ☐ Great sense of humour in messages.
- ■ Control and menu systems can be awkward.

STAYING POWER 84%
- ☐ Plenty of problems to keep you going.
- ■ Too tough in places where small mistakes can cost you dear.

AA RATING 87%
- ☐ It's even got a good sub-game and all for £2.

HOLLYWOOD OR BUST

Mastertronic, £1.99 cass, joystick only

Not one of Mastertronic's better efforts. You wander around a large film set looking for five Oscars. You're harassed by cops and ghosts and occasionally chased out on to the street for a Keystone Cops sequence. You have custard pies to fight with. Simple gameplay, yukky graphics but a jolly tune.



The Verdict

GRAPHICS 42%
- □ Large animated characters.
- ■ Very blocky design.

SONICS 65%
- □ Jolly tune throughout game.

GRAB FACTOR 36%
- □ Challenging exploration/mapping task.
- ■ Only one life and too easy to die.

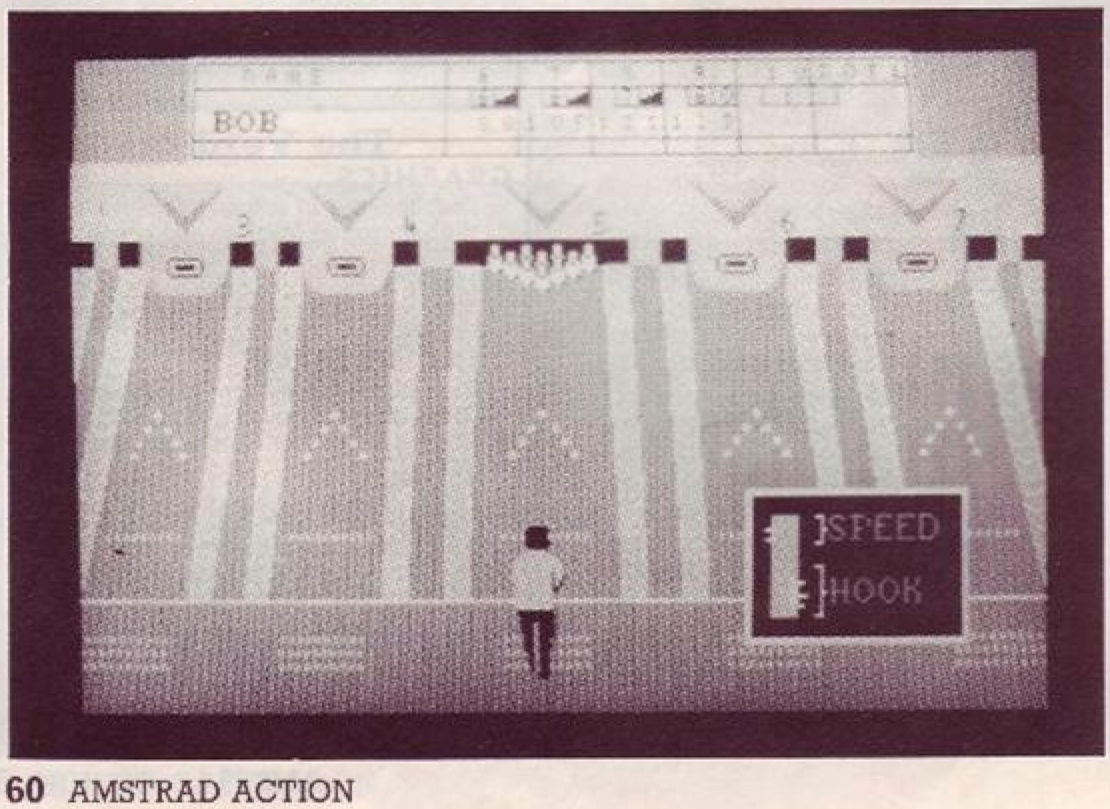
STAYING POWER 30%
- ■ Just exploring and the odd bit of pie-throwing.

AA RATING 39%
- ■ Cheap but not very cheerful.

10TH FRAME

US Gold, £9.99 cass, £14.99 disk, joystick or keys

Initially disappointing simulation of ten-pin bowling, but it grows on you. Lane display is too small and strength or hook commands are hard to determine – but with practice it improves. Has kids' option, league or open bowling and up to eight players. A decent simulation that would have benefitted from more spectacular graphics and easier controls.



The Verdict

GRAPHICS 30%
- ■ Small, indistinct lane display.
- ■ A ball's-eye view would have been better.

SONICS 24%
- ■ Wimpy sound effects and no music.

GRAB FACTOR 47%
- ■ Not easy to get the hang of control.
- ■ Unimpressive graphics put you off.

STAYING POWER 69%
- □ Quite skilful if you practice.
- □ Up to eight players and three skill levels.

AA RATING 60%
- □ The one and only bowling simulation.

LITTLE COMPUTER PEOPLE

Activision, £14.99 disk, keys only



Voyeurism for computer owners

A novel idea for a computer pet. An LCP moves into a house on your screen and you have to look after him and his dog. They're always men (very chauvinistic) and demand plenty of attention. Yoy can play card games with them and watch them as they go about their daily business. A curiosity rather than a game, suitable for lonely hermits and those with a taste for the unusual.

The Verdict

GRAPHICS 58%
- □ Good animation on main character.
- □ A well kept, tidy house.

SONICS 20%
- □ Depends on his record collection and piano playing.
- ■ Our guy Dwight is tone-deaf.

GRAB FACTOR 50%
- □ Depends on whether you like him or not.

STAYING POWER 50%
- ■ Dwight gets on my nerves.
- □ But you may become good friends with yours.

AA RATING 60%
- □ A bold, original concept. Try it and see.

BRIAN CLOUGH'S FOOTBALL FORTUNES

CDS, £14.95 cass, £17.95 disk, keys only

A combination of computer and board game that works well. Up to five players can take the role of a football manager and guide their club through league, cup and European action. As well as skill the game relies on the throw of dice taking the players around a game board. An excellent family-entertainment idea that football fans of all ages will love.



The board, cards and other equipment

The Verdict

GRAPHICS 31%
- ■ The computer part is just menus.
- □ The board and cards are great (does this count?)

SONICS 5%
- ■ Virtually none.

GRAB FACTOR 72%
- □ Easy to play.
- □ Combines computer and board game well.

STAYING POWER 77%
- □ With up to five players you'll have lots of fun.

AA RATING 73%
- □ Great entertainment for all.
- ■ Not cheap.

KORONIS RIFT

Activision, £14.99 disk, joystick or keys



Disk-only games are something of a rarity, which is a surprise when so many people own 664s, 6128s or disk drives for the 464. This makes it all the more pleasing when one does arrive and it turns out to be a real cracker. You are a Techno-scavenger out to plunder the planet Koronis of its technological treasures found deep in the planet's rifts.

At first sight the instructions look dauntingly complicated. But fret not: most can be ignored to start with; read them later for in-depth knowledge of the game. There are 20 rifts that you have to get through by a mixture of exploration, shoot-em-up, strategy and luck. There are two sections to the game: on the planet surface in your "rover" where everything has to be done quickly, and back in the "scoutcraft" where things are much more leisurely.

You first have to launch the rover into the first rift. A craggy, shadowy landscape is

MENU: this allows you to call the scoutcraft, loot a hulk and also serves as a message window.

MODULES: up to six modules can be installed here. They're colour-coded and have a symbol indicating their race of origin.

SCANNER: guides you to the nearest hulk – just centre the pink dot at the top of the circle and drive.

POWER: shows the energy available to your weapons and how much each shot will use from the reserve.

MOVEMENT: the three arrows show the direction of travel; speed is below.

SHIELD: indicates the strength of the shield – all black bars is very bad news indeed.



Psytek sits behind his conveyor belt ready to analyse the module in front of him.

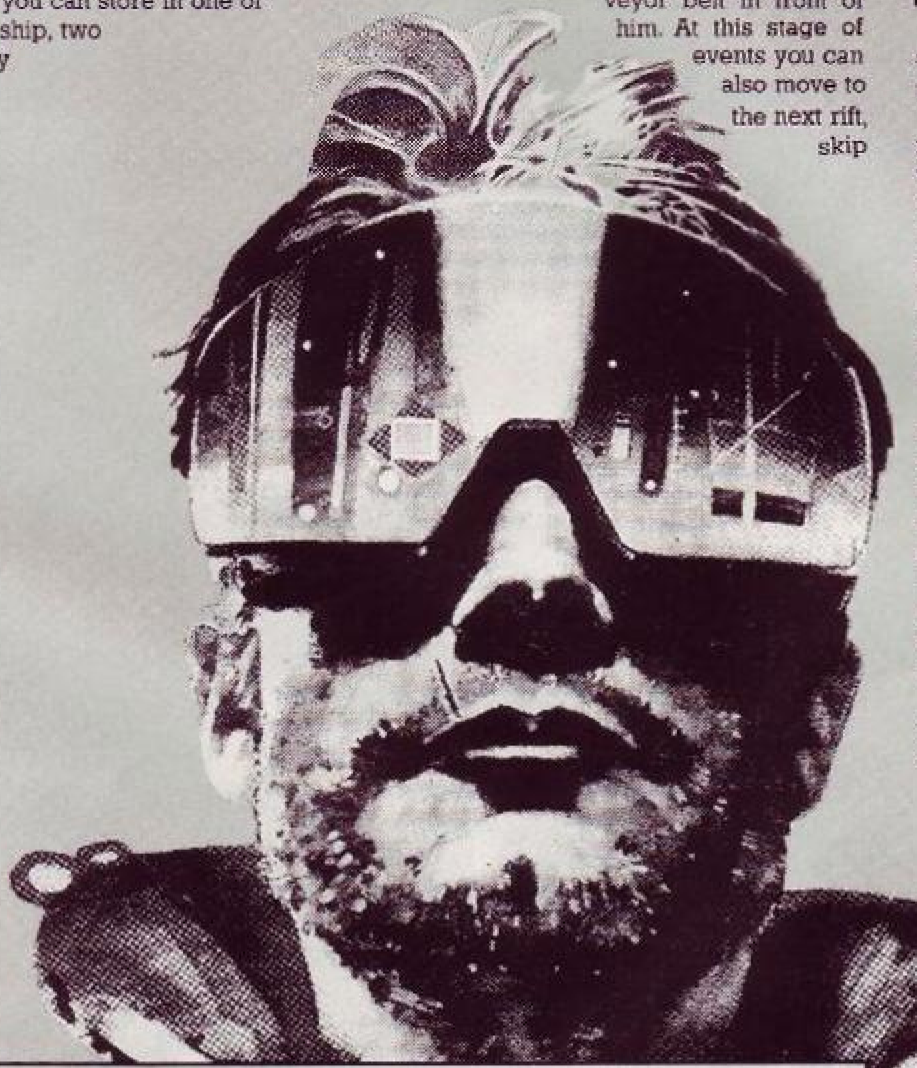
revealed, changing smoothly, quickly and convincingly as you drive through it. The use of fractal mathematics to create the feeling of perspective and movement is excellent: if you drive across a slope the view even tilts horizontally. Above and below the planet view are instrument displays. A cursor appears within the view.

You're driving around the rift in search of "hulks" that you can loot for their technological artifacts. However you are continuously buzzed by guardian saucers trying to stop you; they have no qualms about spilling a few drops of scavenger blood. The on-screen cursor aims a laser which can destroy the guardians – but watch out for their return fire.

Once the area is clear you can send out a "repo-tech" robot to loot the hulk. It will bring back a module that you can store in one of six spaces on your ship, two of which are already filled. You can then go off in search of other hulks until you've got six modules, run out of hulks, or just feel like a break from the action. At this point you just need to get clear of guardians and call the ship.

On board you see your "Psytek Science Droid System Analyzer" sitting amid lots of high-tech gubbins. He will analyse the various modules you've brought back and give you an idea of their usefulness. There are seven types of module. Once installed they give your rover different abilities with weapons, shields, power, radar and so on. You can dismantle modules you don't want or store them for later use.

The robot is quite nicely animated as he performs tasks, moving his arms and hands around and shuffling the modules on a conveyor belt in front of him. At this stage of events you can also move to the next rift, skip a rift, load or save the game, and return to the same rift.



As you collect modules you can deal with more difficult rifts and more numerous and more skilled guardians. An important part of this is the colour-coding of the guardians, weapons, modules and hulks. Six colours are used. The greater the difference between a weapon and shield colour, the more likely damage is to occur. For instance, a purple laser is best against yellow shields and a blue shield defends best against a blue laser.

The graphics are excellent, smooth-moving and realistic. The saucers and hulks are colourful and well designed, and they explode well too. The gameplay is a mixture of breathless rushing around followed by long pauses to regain composure, and will get you hooked. The strategy and depth of the game take time to come out but are important; you'll need to work hard to get very far. An excellent addition to any disk owner's collection. **BW**

SECOND OPINION

This is a lovely game to watch. The fractals are very realistic. The landscape is never still: you get a great feeling of movement and perspective. Even without those wonderful graphics Rift is absorbing. The tendency to blast anything that moves is strong – but do that and you won't get far. There is a large expanse of playing area that has to be searched and lots of hulks to loot. Which reminds me, I haven't found the last of them yet... **RpM**

GREEN SCREEN VIEW

Playable, but colour-coding is very difficult to distinguish

FIRST-DAY TARGET SCORE

Loot all hulks in rift 1

System identification

These are the systems that can be looted from hulks and the added abilities they provide.

- **Laser:** colour-coding is important, also their varying strengths; multiple hits may be needed on guardians.
- **Shield:** colour-coding is again important, for these are your only defence.
- **Generator:** very important as it supplies the power for all the other units.
- **Power reserve:** stores energy, useful when using weapons.
- **Radar:** locates types of object belonging to the race of origin.
- **ECM:** makes the user harder to detect by the guardians.
- **Drive:** adds to or changes the rover's ability to move.

The Verdict

GRAPHICS 92%
☐ Smooth, fast fractal graphics.
☐ Colourful, well designed ships.

SONICS 63%
■ No music to speak of and few effects.

GRAB FACTOR 87%
☐ Fractals and features will amaze immediately.
■ Strategy elements take time to discover.

STAYING POWER 92%
☐ 20 very testing rifts.
☐ Plenty of depth as you progress.

AA RATING 90%
☐ What disk owners have been waiting for.


SIGMA 7
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CHEAT MODE

Bob Wade checks out your tips, pokes and game-busting ploys. The best ones could win an entire issue's *AA* Raves! So why not send *your* latest gem to: Cheat Mode, *Amstrad Action*, Somerton, Somerset, TA11 7PY.

Swords & Sorcery

Back in issue 14 we printed tips on this dungeons-and-dragons game. Here's some additional information from **P Newman** of Dungannon.

1 Fighting or magic skill is incremented by 1 point for every 3 monsters killed. Which skill is increased depends on which menu was used at the monster's death.

2 Unarmed combat eventually earns the skill Dodge, and if unarmed combat skill is high can Maim the attacker.

3 Shield stops Hack/Lunge but not always.

4 Attack defence does the same amount of damage to the attacker as it did to you.

5 Lunge kills any monster that has its back to a wall.

6 Hack always kills a retreating monster.

REBELSTAR

Paul Vincent of Worcester tells us of an odd tip for the budget strategy game. When prompted to load the data for a one-player game, load the data for the two-player game instead. This produces weird effects: the master droids are unarmed, many of the warrior droids are armed with annihilators and many droids are invisible except in fire mode.



Legend of Kage

Tim Jones of Kettering has some tips that should help you complete the oriental game easily – if you hadn't already.

Level 1: Wait until the ninja guards are on the ground, then duck down and press fire. When the dragon king comes, keep walking until he comes behind you, then turn to face him, duck and fire. Keep going left until you see a pink thing on the branch of a tree. After getting this go right until you have killed enough ninja guards to go to the next level.

Level 2: Keep jumping diagonally to the right and keep firing until enough ninja guards have been killed.

Level 3: Keep jumping diagonally left and keep firing until you reach the roof.

Level 4: First go left killing the ninja guards and the dragon king before you get to the stairs. Go up them and then go to the right and do the same as on the first floor. Keep going up the stairs until you reach the roof. Defeat the dragon king and rescue the girl.

Mikie

The second Konami game to be poked by **Tony Hoyle**prevents the teacher, cook and other characters from harming you. If you touch them, they will pass straight through you. Type in and run the listing.

```
1 ' Mikie -- disk
2 ' by Tony Hoyle
3 ' Amstrad Action April 87
10 GOSUB 40
20 CALL &58A8:GOTO 20
30 '
40 OPENOUT"d"
50 MEMORY &3E7
60 LOAD"mikie.sbf",&3E8
70 POKE &621C,&C3
80 RETURN
```



JACK THE NIPPER...

Want a nice easy way to get 100% naughtiness? **David Pugh** of Worksop has the answer.

First find the key in the far left garden. Go to the museum and enter the room on the left. The radiator will have disappeared so go through the gap. Find a way to get to the door at the top and you fall through on to a fireplace. In the next room you'll find a horn – take it and leave. Go to the police station and don't come forward but walk left to the bench. Blow the horn and, hey presto, the naughty-ometer magically starts to rise.

JACK THE NIPPER

Asterix

Paul Evans of Leeds has sent in tips for the gallic cartoon character's game that should enable you to complete it.

1 Go off the top of the first screen, turn left behind the rock and get one piece of the cauldron.

2 Go right, up, right and find the second piece.

3 Find a centurion and then don't move on the fighting window. You're put in a cell. Wait for the door to open and then drink the potion before fighting the gladiator. He will disappear, leaving a piece of the cauldron.

4 Find the cell key and get captured again and you will find another piece of the cauldron in cell V before exiting through cell IIX.

5 There's a piece of the cauldron in each of the two Roman camps and one in front of a building in the town.

6 Keep stocking up on hams and avoid fighting too many centurions and it's easy.

XCEL

The budget games have taken a beating this month. **Stuart Ashley** of Chorleywood, Herts, supplies a poke for infinite lives on Mastertronics' highly playable *Xcel*.

```
1 ' Xcel
2 ' by Stuart Ashley
3 ' Amstrad Action April 87
10 MEMORY &8FFF:LOAD"xcel"
20 POKE &901E,&C9
30 CALL &9000
40 POKE &3227,0
45 POKE &3228,&BE
50 FOR x=&BE00 TO &BE07
60 READ a$
65 POKE x,VAL("&"+a$)
70 NEXT:CALL &3000
80 DATA 3E,00,32,A4
90 DATA 33,C3,5D,6A
```



Here is an unusual poke from **Stephen Basford** of Crewe, Cheshire. The listing below will load in a saved game from *Zoids* and alter it to give you maximum power, bullets and so on when you reload it into the actual *Zoids* game.

```
1 ' Zoids
2 ' by Stephen Basford
3 ' Amstrad Action April 87
10 MODE 1:MEMORY 28478
20 FOR c=42000 TO 42006
30 READ d:POKE c,d:NEXT
40 PRINT"Position tape to
   load a ZOIDS SAVED GAME"
50 PRINT:CALL 42000
60 POKE 28502,255:POKE 28503
   ,255:POKE 28504,255:POKE
   28507,255:POKE 28509,255
70 PRINT"Position tape to
   save new game and press
   a key"
80 call &bb18:save
   "zoidprog.",b,28479,1094
90 END
100 DATA 17,63,111,205,
    119,188,201
```



SPACE HARRIER

Here are both tape and disk pokes for this highly addictive game from Elite. The first tape poke is courtesy of **Declan Kennedy**, who frequents Armagh in Northern Ireland. It prevents aliens shooting at you and gives infinite lives. **Phil Howard**, not wishing to be left out of the action, has supplied another terrific poke giving a rapid-fire option and extra lives on the cassette game. The disk version comes from **RpM** and stops aliens firing at you as well as giving you infinite lives.

Enter Declan's cassette poke with Method 1. Questions will appear on screen; just answer yes or no for the required effect.

```
1 ' Space Harrier -- tape
2 ' by Declan Kennedy
3 ' Amstrad Action  April 87
10 OPENOUT"Y":MEMORY &3B5:
   CLOSEOUT
20 MODE 1:BORDER 0:FOR x=0
   TO 15:READ y:INK x,y:
   NEXT x
30 PEN 1:PRINT"INFINITE
   LIVES (Y/N) ?"
40 a$=UPPER$(INKEY$):IF
   a$<>"Y" AND a$<>"N"
   THEN 40
50 CLS:PRINT"STOP ALIENS
   FIRING (Y/N) ?"
60 b$=UPPER$(INKEY$):IF
   b$<>"Y" AND b$<>"N"
   THEN 60
70 MODE 0
80 LOAD"!screen",&C000
90 LOAD"!block",&3B6
100 IF a$="Y" THEN POKE
    &D74,0
110 IF b$="Y" THEN POKE
    &104C,0:POKE &104D,0:
    POKE &104E,0
120 CALL &3B6
130 DATA 0,26,6,0,0,9,2,25
    ,15,3,16,10,13,21,14,20
```

Use Method 1 for Phil's routine. It keeps your firing finger intact, as it gives you rapid-fire. For extra lives press P which will pause the game; resume it with + for an extra life.

```
1 ' Space Harrier -- tape
2 ' by Phil Howard
3 ' Amstrad Action  April 87
10 DATA C2,20,04,3E,03,CD
20 DATA 6F,06,CB,67,28,0B
30 DATA 3A,07,06,FE,39,28
40 DATA 04,3C,32,07,06,C9
50 DATA 21,2F,0D,36,C3,23
60 DATA 36,00,23,36,01,AF
70 DATA 32,8F,12,C3,B6,03
80 y=0:OPENOUT"w"
90 MEMORY &3B0:MODE 1
100 FOR x=&100 TO &129
110 READ a$:a=VAL("&"+A$)
120 poke x,a:y=y+a:NEXT
130 IF y<>&BC3 THEN 160
140 LOAD"BLOCK",&3B6
150 CALL &118
160 PRINT"DATA ERROR!"
```

The disk poke should be typed in and saved to the original *Space Harrier* disk. Whenever you want infinite lives or aliens that don't shoot, run this routine.

```
1 ' Space Harrier -- disk
2 ' by RpM
3 ' Amstrad Action  April 87
10 DATA 3E,01,CD,0E,BC,06,
   05,21,07,BF,CD,77,BC,21,
   6D,8D,CD,83,BC,CD,7A,BC,
   21
20 DATA A6,BE,3E,A6,32,AC,
   8D,3E,BE,32,AD,8D,C3,6D,
   8D,21,17,BF,CD,0C,BF,3E,
   2B
30 DATA CD,1E,BB,20,2E,3E,
   2E,CD,1E,BB,20,31,18,F0,
   CD,55,BF,21,31,BF,CD,0C,
   BF
40 DATA 3E,2B,CD,1E,BB,20,
   25,3E,2E,CD,1E,BB,20,2E,
   18,F0,3E,59,CD,5A,BB,C9,
   3E
50 DATA 4E,CD,5A,BB,C9,CD,
   D5,BE,AF,32,74,0D,C3,BC,
   BE,CD,DB,BE,C3,BC,BE,CD,
   D5
60 DATA BE,AF,32,4C,10,32,
   4D,10,32,4E,10,C3,B6,03,
   CD,DB,BE,C3,B6,03,45,4C,
   49
70 DATA 54,45,7E,FE,00,C8,
   CD,5A,BB,23,C3,0C,BF,04,
   01,49,4E,46,49,4E,49,54,
   45
80 DATA 20,4C,49,56,45,53,
   20,28,59,2F,4E,29,20,3F,
   20,00,0D,0A,0A,50,52,45,
   56
90 DATA 45,4E,54,20,41,4C,
   49,45,4E,53,20,53,48,4F,
   4F,54,49,4E,47,20,28,59,
   2F
100 DATA 4E,29,20,3F,20,00,
    06,40,C5,CD,19,BD,C1,10,
    F9,C9
110 FOR t=&BE80 TO &BF5E:
    READ a$:POKE t,VAL("&"
    +a$):b=b+VAL("&"+a$):
    NEXT t
120 IF b<>23166 THEN PRINT
    "ERROR IN DATA":STOP
    ELSE CALL &BE80
```

Space Harrier

Tips for Elite's lightning-fast shoot-em-up by **Ken Murfitt** of Crawley. Each level is accompanied by a target score to reach at the end of it, and on the later levels Ken just suggests where to go at the start.

General tips:

Most formations consist of three or four aliens on the earlier levels. Dragons are easy to kill – when they come toward you, move in a clockwise direction around the edges of the screen and don't cut corners. As the dragon moves away blast it as much as possible. Don't try to fly over ground objects on levels 1, 2 and 11 – you can't. If you don't like tackling triads (black aliens that open and close) then move to the bottom left of the screen.

Stage 1 – Moot: 395,000
Stay at bottom left for the first set of aliens. After second formation go bottom right, bottom left, kill triads, bottom left, bottom right, bottom left, kill triads the dragon.

2 – Geeza: 707,000
Bottom left, bottom middle, middle right, bottom right, bottom left, then kill faces.

3 – Amar: 1,300,000
This level contains lots of red blobs. To destroy them move left and right about halfway up the screen, ducking to avoid bullets if necessary. After first formation go bottom right, bottom left, bottom right (watch for bullets), three sets of red blobs, bottom right, more blobs, then dragon.

4 – Cieciel: 1,527,000
Red blobs at bottom of screen. No dragon.

5 – Olisis: 2,000,000
Middle left to shoot birds. Level ends with faces; stay in middle of the screen and shoot them as they appear.

6 – Lucasia: 2,400,000
Bottom left, bottom middle, bottom right. Watch out for two sets of triads later in the level.

7 – Ida: 2,700,000
Stay in the middle of the screen for first formation. Spend most of the time on the ground.

8 – Revi: 2,900,000
Bottom right, bottom left, bottom right, dragon at end.

9 – Minia: 3,300,000
Stay around bottom-left area, moving to avoid bullets. Faces at end of level.

10 – Parms: 3,700,000
Middle left. Dragon at end.

11 – Drail: 3,900,000
Quite a short level. Bottom right, bottom left. Watch out for mixed formations of more than one kind of alien. Faces at end of level.

12 – Asute: 4,200,000
Spray bullets along bottom of the screen. Dragon at end.

13 – Vicel: 4,600,000
Two sets of triads at start of level. More mixed formations. Dragon.

14 – Natura: 5,100,000
I think this is the hardest level. Middle-left to start. Watch out for new triad formations which can't be avoided by flying at bottom left.

15 – Nark: 5,600,000
Middle of screen for first formation. More mixed formations.

16 – Absymbel Godarni: over 6,000,000
Four dragons. Stay in middle for first alien. Game finishes after fourth dragon.

Moonbuggy

The final of Stephen's pokes for the *Computer Hits 2* games gives infinite lives for another highly frustrating game.

```
1 ' Moonbuggy
2 ' by Stephen Hooper
3 ' Amstrad Action  April 87
10 MEMORY &3000
20 MODE 1:LOAD"PROG"
30 POKE &8771,0
40 CALL 30720
```

Dragon's Lair

Here are a couple of pokes – one for tape, the other for disk – for the multi-loading game from Software Projects. The cassette version comes to you from **Phil Howard** who mauls Arnold's memory and wanders the streets of Mapperley. The poke, entered using Method 1, allows you to select the level of your choice.

```
1 ' Dragon's Lair -- tape
2 ' Phil Howard
3 ' Amstrad Action  April 87
10 DATA D5,21,00,03,11,FF
20 DATA 7C,AF,CD,A1,BC,18
30 DATA 16,7A,27,0D,3D,A3
40 DATA 3E,6F,27,39,43,73
50 DATA 38,0D,3D,2F,2D,7F
60 DATA 3F,50,46,48,20,D1
70 DATA 21,B7,25,36,A7,21
80 DATA 5A,25,73,21,0B,BE
90 DATA 19,19,5E,23,56,ED
100 DATA 53,5F,25,C3,17,25
110 CLS:INPUT"LEVEL";n
120 IF n<1 OR n>9 THEN 110
130 y=0
140 FOR x=&BE00 TO &BE3B
150 READ a$:a=VAL("&"+a$)
160 POKE x,a:y=y+a:NEXT
170 IF y<>&13EB THEN 190
180 CALL &BE00,n
190 PRINT"DATA ERROR!"
```

The disk poke, giving infinite lives for *Dragon's Lair* comes from **Paul Clewer** in Walsall, West Midlands. Just run the poke below to put it into effect.

```
1 ' Dragon's Lair -- disk
2 ' by Paul Clewer
3 ' Amstrad Action  April 87
10 OPENOUT"y":MEMORY &299
20 CLOSEOUT:LOAD"DL"
30 POKE &25A8,0
40 CALL &2517
```

Android 2

Stephen Hooper of Great Wyrley, Staffordshire, has given the games on the *Computer Hits 2* compilation tape a good going-over. *Android 2* from Vortex is his first. Enter it using Method 1; it gives infinite lives.

```
1 ' Android 2
2 ' by Stephen Hooper
3 ' Amstrad Action  April 87
10 OPENOUT"x":MEMORY 2699
20 load"AND2MC",2700
30 POKE 10274,0
40 CALL 2700
```

Never again

Coming up are four tips which I'm sick to death of seeing. I'm printing them this once; the next time someone sends them in I'll call the Spanish Inquisition and the comfy chair into action.

Terra Cognita: fly onto the first extra-life square and then timeshift to the begining. Repeat.

Zub: the CTRL key operates a planet scanner.

Roland in the Caves: press the down-arrow key as you enter a cave to go to the next level with large bonus points.

Last but not least the most repeated and boring cheat of all time. ***Galactic Plague***: press the 'R' key to take you to the next level. A bonfire will greet the next letter containing that tip.

ALIENS

There was an excellent response to the request for a playing guide to the Electric Dreams thriller, but the one that came out on top was from *Bhasker Pandya* of New Brighton. Honourable mentions go to *Iain Purdie* of Strathaven, *Darren Williams* of Warley and *L Moroney* of Drogheda.

First off, align your smart gunsights to the head height of an alien – this is just above the centre of the door-locking mechanisms. Now, making as much use of the map as possible, move Ripley all the way to the generating room. Do this quickly, without stopping to fry any aliens, and you should make it with stomach intact. If Ripley meets a sticky end, you might as well restart: you need all the help you can get.

Once inside the generating room you should kill the occupying alien and then clear away any growth on the walls, before blasting the locks to close the doors. Now move the other five characters to the control room. Clear it of aliens and growth, leaving one person inside with the doors blast-locked. Now you should initiate some little mental interrupt routines to remind you regularly to remove growth from both the generating and control rooms. If you don't do this, when either room is covered with growth the lights will go out.

Now you're on to the exciting bit – so wipe the blood off the hole in your shirt and warm up your hands; here we go...

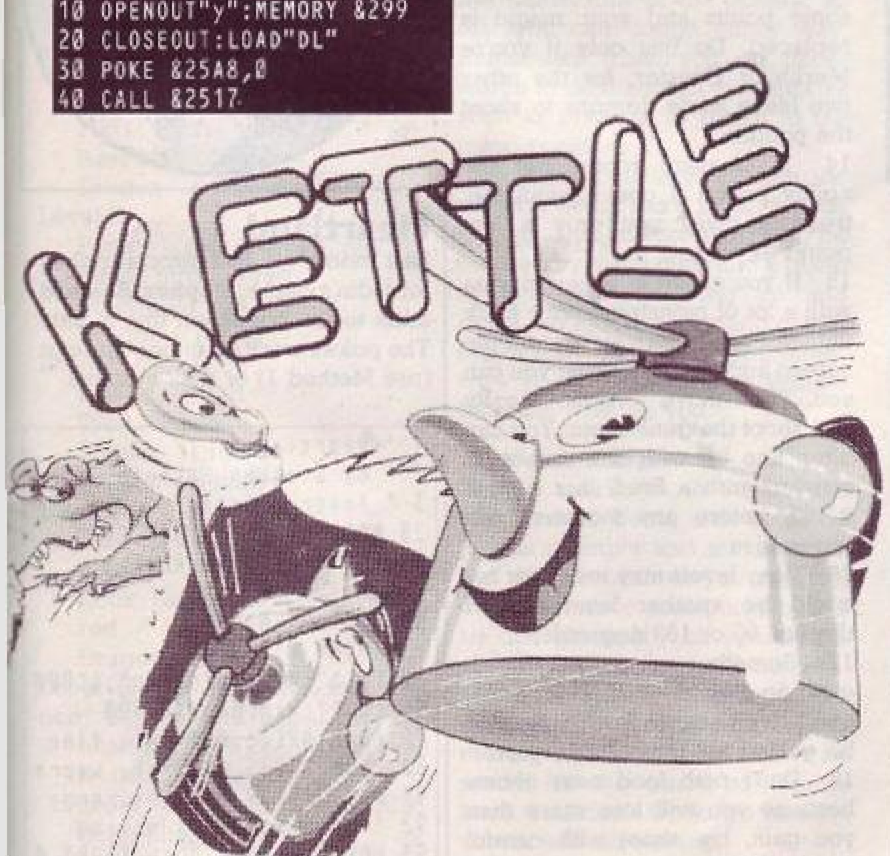
Rush the remaining characters who are still alive but not guarding the control or generating rooms down the long eastward corridor leading to the third sector, and then to the 6×4 block of rooms just before the Queen's chamber. Rest the characters when possible and assemble the remaining three or four (hopefully) in the room just before the Queen's chamber, ready for the final assault.

Move the first character into the chamber and rotate until you have found the flashing mass that is the Queen. You must destroy it quickly and begin removing all the growth from the walls. When you either run out of ammo (keep some for killing the alien in the ammo room, if you survive to make it there) or are impregnated, move the next character into the fray and continue to remove the growth from the walls.

When all the growth is removed you should receive a message from the company congratulating you. Now move all your surviving characters out of the chamber and return to the MTOB.

During this final stage you may now start shooting aliens to bump up your credit totals. It no longer matters if any characters die, but you must have at least one alive and ready in the room before the MTOB returns home. The other characters should now make free use of the ammo room to replenish ammo and carry on blasting. When you're down to one character move into the MTOB and another company message will appear and you have won.

KETTLE



From Drogheda comes a tip by **L Moroney** on Alligata's boil-em-up. On the title screen, move the arrow to about one character below the play *one* box, then move slightly to the left and press fire. If you are in the correct spot the arrow will change colour. If it doesn't, keep moving the arrow and pressing Fire until it does. Once the arrow has changed colour start the game and when you press Tab you will get the secret map.

GOLDEN TALISMAN

A Method-1 poke for another of Mastertronics' budget games. This destroys all dragons guarding various chambers and removes nasties in certain rooms. You have **Paul Bevan** of Basildon in Essex to thank.

```
1 ' Golden Talisman
2 ' by Paul Bevan
3 ' Amstrad Action  April 87
10 INK 0,0:BORDER 0:MODE 1
20 INK 1,1:INK 2,24
30 PEN 1:PAPER 2
40 MEMORY 5319
45 LOAD"CODE",5320
50 FOR f=6077 TO 6090
55 POKE f,0:NEXT
60 POKE 6152,0:poke 6234,0
70 CALL 5320
```

Going for a record number of poke submissions, **Stephen Hooper** has hacked one of Mastertronics' magical budget games. It reverses the effects of the sliding barriers. Instead of sapping your energy they now increase it. Be careful that you don't over-fill your energy; otherwise you'll die in the normal way. Enter via Method 1.

```
1 ' Golden Talisman
2 ' by Stephen Hooper
3 ' Amstrad Action  April 87
10 MEMORY 4800:LOAD"CODE",5320
20 POKE 16434,&3C
30 CALL 5320
```

GAUNTLET™

Last month's issue saw quite a spectacular set of pokes for *Gauntlet*. Here are some more interesting pokes to add to the collection – one for tape, the other for disk.

The cassette version is from that prolific poker, **Tony Hoyle**, and is entered using Method 1. Press 1 for infinite health or 2 for extra health when you pick up food.

```
1 ' Gauntlet -- tape
2 ' by Tony Hoyle
3 ' Amstrad Action April 87
10 DATA CD,18,BB,FE,31,28
20 DATA 08,21,30,BE,36,18
30 DATA 23,36,04,21,70,01
40 DATA 11,70,02,3E,16,CD
50 DATA A1,BC,21,ED,01,36
60 DATA 3E,23,36,6B,21,A3
70 DATA 02,36,46,23,36,05
80 DATA C3,ED,01,CD,14,03
90 DATA 21,95,96,36,C9,C9
100 DATA 21,33,85,36,03,09
110 CLS:y=0
120 FOR x=&BE00 TO &BE3B
130 READ a$:a=VAL("&"+a$)
140 POKE x,a:y=y+a:NEXT
150 IF y=&1487 THEN 190
160 PRINT"1) INFINITE HEALTH
170 PRINT"2) EXTRA BONUS"
180 CALL &BE00
190 PRINT"DATA ERROR!"
```

Gorilla is the name of the person sending in the disk poke for *Gauntlet*. The only other information we have on this elusive character is that he swings on the vines of Hull.

The poke writes to the disk – make sure to take the write-protect off and to type in the data carefully. You are given infinite health and super-character status where all characters can fight in hand-to-hand combat as threateningly as Thor and have magical powers to match Merlin. There is even a poke that will enable two players to be the same character.

```
1 ' Gauntlet - disk
2 ' by Gorilla
2 ' Amstrad Action April 87
10 sum=0:FOR a=&109F TO
  &10FF
20 READ a$
30 POKE a,VAL("&"+a$):sum=
  sum+PEEK(a)
40 NEXT:IF sum<>7292 THEN
  PRINT"error in data":STOP
50 MODE 0:PRINT"Insert
  Gauntlet Disk"
60 PRINT"Press a key...":
  CALL &BB18
70 LOCATE 1,22:INPUT"
   Restore to normal
  (Y/N) ";a$
80 add=49152
90 FOR t=29 TO 32
100 FOR s=&11 TO &18
110 CALL &109F,add,s,t
120 NEXT s,t
130 READ t,s
140 IF t=-1 THEN END
150 IF y<>&1487 THEN 190
160 READ x,y:IF x<&1000
   THEN t1=x:s1=y:GOTO
   190 ELSE READ z
170 IF a$="n" OR a$="N"
   THEN POKE x,y ELSE
   POKE x,z
180 GOTO 160
190 a=0:WHILE a<1000:
   a=a+1:WEND
200 CALL &10B1,&1100,s,0,t
210 t=x:s=y
220 GOTO 140
230 DATA dd,56,00,dd,4e,02,
   dd,6e,04,dd,66,05,1e,00,
   df,f2,10,c9,dd,56,00,dd,
   5e,02,dd,4e,04,dd,6e,06,
   dd,66,07,df,f5,10,c9,04,
   00,c1,02,04,00,c6,02,04,
   00,c2,02,04,00,c7,02,04,
   00,c3,02,04,00,c8,02,04,
   00,c4,02,04,00,c1,02,04,
   00,c6,02,00,00,00,00,81,
   c5,07
240 DATA 52,c6,07,66,c6,07,
   4e,c6,07,00,00,00,00,00,
   00,00,00
250 DATA 25,&11
260 ' Health=9900
270 DATA &1243,&99,&20
280 ' Infinite health
290 DATA &1136,&c9,&c0
300 DATA 0,&41
310 ' Super character
320 DATA &11a1,255,&8e,
   &11a3,255,&d8,&11a5,
   255,&32,&11a7,255,&64
330 DATA 39,&15
340 ' Two players can be one
   character
350 DATA &117a,&2c,&b9
360 DATA -1,-1
```

After giving a selection of pokes for the US Gold game last month we've received some mega-tips from *James and William Moffatt* of Shepperton. They're very comprehensive and should allow you to progress well even without the pokes.

1 Merlin is the best character to choose: he becomes the most powerful once all the potions have been collected.

2 A single-player game is much better than a two-player game because all the food, potions and points go to one person. Also co-operation can be difficult in tense situations, and with practice it's just as easy to survive with only one.

3 Only cider can be poisoned, and you can tell this by the reflection on the bottles. Poisoned food has only a single-pixel reflection whereas healthy food has two.

4 Fight hand-to-hand only near food or potions: although you gain more points you lose more energy.

5 NEVER fight hand-to-hand with ghosts, with the possible exception of when you're near good potions.

6 You can score only 999,999 points so unless you are going for levels, kill yourself off to get your score on the tables.

7 You can get only 9,999 in health so if you are very close to this, kill all the monsters on a level and then eat the food, to gain the maximum energy for the next level.

8 Shoot poisoned food to avoid accidents, because losing a hard-won ability potion is frustrating.

9 Use potions wisely: Thor and Thyra can kill only deaths; they only harm other creatures even with the magic enhancer. So if you're using two players let Merlin or Questor have the potions if they are playing.

10 In areas with a lot of deaths, even if they can't harm you, kill them with a potion because you get 2,000 points for each.

11 On large, open levels it is often best to run around to find food, magic and the exit rather than fight, because if you're surrounded you lose a lot of energy and generators are usually hidden from your shots by walls.

12 Try to shoot generators as soon as possible or you will just get worn down. If you can, shoot them through any gaps in the walls where nothing can get you.

13 If demons threaten a potion or magic, it may be worth using magic on them: at least you get some points and your magic is replaced. Do this only if you're Merlin or Questor, for the other two leave some demons to shoot the potion.

14 In treasure rooms get the ability potion if one is available: treasure gives you only a few points anyway.

15 If you arrive at an open area with a lot of monsters, move back until the generators are just off the screen and shoot anything you can see. Then move forward slightly and shoot the generators. You can often line up with one and walk forward with a fired shot so that it hits before any monsters can materialise.

16 Many levels may look new but could be another level rotated through 90 or 180 degrees.

17 Sometimes it is not worth clearing a level – just find the exit and leave because few points may be gained but much health lost.

18 Don't rush food near ghosts because you will lose more than you gain, but shoot with careful single shots.

19 If you find yourself in a room with a long row of generators you must try to destroy them as soon as possible, because they will release many monsters. Move towards one end of the row then turn to face the generators, then shoot it and move up the row as quickly as possible, ignoring the monsters until all the generators have been shot.

20 Don't touch the traps, unless you know which walls will disappear, until you have killed all the monsters you can. Sometimes traps must be touched to finish a level, in which case it is best to touch it as soon as possible, so that you don't have to backtrack later. On some levels it may be very difficult to see a trap against the background, so look very carefully. If you still can't find it, go into all the corners that you can find.

21 Dodge demon fireballs if you can: they do a lot of damage and will soon wear you down.

22 If there are no other monsters around, try to fight lobbers hand-to-hand because they don't fight back.

23 If you must choose between picking up a potion or a key, get the potion: if you get stuck at a door and have no key you can always wait for the doors to disappear.

24 Try not to let the doors disappear: the keys disappear with them and are worth 100 points each.



Heartland

Last month we had several pokes for Odin's game. **Stephen Basford** adds to the collection this month. The pokes work on either cassette (use Method 1) or disk systems.

```
1 ' Heartland
2 ' by Stephen Basford
3 ' Amstrad Action April 87
20 MODE 0:READ d:BORDER c
30 for i=0 TO 15:READ d:
  INK i,d
40 NEXT:OPENOUT"d":
  MEMORY &1FFF
50 LOAD"!heartpic.bin",&C000
60 LOAD"!kim.bin",&2990
70 POKE &2ED6,0 ' inf. time
80 POKE &4725,0 ' inf. wepns
90 POKE &5039,0 ' inf. engy
92 ' stop monsters moving
93 POKE &3980,0:POKE &3981,0
94 POKE &3982,0:POKE &397B,0
95 POKE &397C,0:POKE &397D,0
96 CALL &2990
97 DATA 26,0,1,26,13,12,24
98 DATA 25,9,18,2,14,20,3
99 DATA 6,15,10
```

The EIDOLON



Robbie Rafferty **and** ***Billy Watson*** **of Edinburgh have sent in some invaluable tips for the stylish Activision game that should help no end. It's a detailed list of what monsters appear on each level and how to kill them.**

Level 1:
- Troll – 3 red fireballs
- Rotofly – 1 red
- Biter bird – 3 red
- Dragon – 3 red

Level 2:
- Biter bird – 3 red
- Grep – 3 red
- Rotofly – 1 red
- Dragon – 4 gold

Level 3:
- Bottleneck – 3 red
- Rotofly – 1 red
- Troll – 5 red
- Dragon – 5 green

Level 4:
- Malloc – 9 red
- Puffer bird – 3 red
- Biter bird – 3 red
- Dragon – 6 blue

Level 5:
- Polyps – red, 3 green, red
- Puffer bird – 3 red
- Rotofly – 1 red
- Dragon – 7 gold

Level 6:
- Malloc – 9 red
- Troll – 8 red
- Rotofly – 1 red
- Dragon – 8 blue

Level 7:
- Biter bird – 3 red
- Rotofly – 1 red
- Rock Head – 2 green, many red
- Dragon – 9 red

Level 8 (the seven-headed dragon): Get the right fireball for each head and just keep firing until it disappears. The seven in order: red, gold, green, blue, gold, blue, red.

Biggles

Tips for Mirrorsoft's goggled hero come from **Alan Young** of Strathclyde. They're for the arcade sequences; the flight simulator was covered in issue 14.

Biggles in the air

Fly just more than halfway up in the sky and just less than halfway across the screen. I don't do any bombing but that is up to you. Try to hit the planes as they come level with you, but if necessary dive or climb, firing non-stop. When you come to a group of guns climb to the top-middle of the screen, so that you can dodge either way. Remember when you go backwards to dive and go forwards as soon as possible to return to the initial position.

After a while you'll near the weapon which has a radar dish on the top. This will probably also be marked by many guns and a plane or two. Start weaving up and down, waggling, diving and climbing quickly and at random, otherwise you'll be shot down without knowing what hit you.

Biggles in London

There's not much to advise. But when you're being shot at, go as low as possible and try to watch the rifle. Sometimes you can fool the sniper as to your position, and he doesn't usually hit you on the second building anyway. Be careful not to take too long; this endangers the second man. When moving the second man always be ready for the guard to double back and don't try to go straight across without waiting.

Biggles on the battlefield

This is where the points come rolling in. Keep your gun blazing and learn the range of the hand-grenades. Use the caves as much as possible. Once you've cleared a screen you can really pick up the points. Go to just less than a grenade's throw from the right-hand side of the screen and wait for the next lot of soldiers. Blast them as soon as they appear and repeat as many times as you like to boost the score.

Mutant Monty

Infinite lives have been provided by **Stephen Hooper** for the *Computer Hits 2* version. Use Method 1. It's just the tonic for this frustrating game.

```
1 ' Mutant Monty
2 ' by Stephen Hooper
3 ' Amstrad Action  April 87
10 MEMORY 8191:MODE 0
20 LOAD"CODE",8192
30 POKE 38465,0:POKE 41322,0
40 CALL 42910
```

Nick Pavis of Rugby has kindly supplied you with infinite lives and the option of rapid- or auto-fire. Enter the poke using Method 2; skip past the first block. Remove the lines with the options you don't need – for example, if you want rapid-fire then leave out lines 130 and 150.

```
1 ' 1942
2 ' by Nick Pavis
3 ' Amstrad Action  April 87
40 MODE 1
50 OPENOUT"d"
60 MEMORY &257
70 LOAD"1942"
80 FOR a=0 TO 8
90 READ a$
100 POKE &26CC+a,VAL("&"+a$)
110 NEXT
120 DATA 3e,04,32,c0,24,32,
   d0,24,c9
130 POKE &2982,0 'auto fire
140 POKE &2974,&C3 'rapid
   fire
150 POKE &2984,n 'no. of
   bullets on screen
160 CALL &89B3
```

IKARI

Brian Warming's poke for the disk version has crossed the seas from Denmark. Just type it in and run when infinite lives take your fancy.

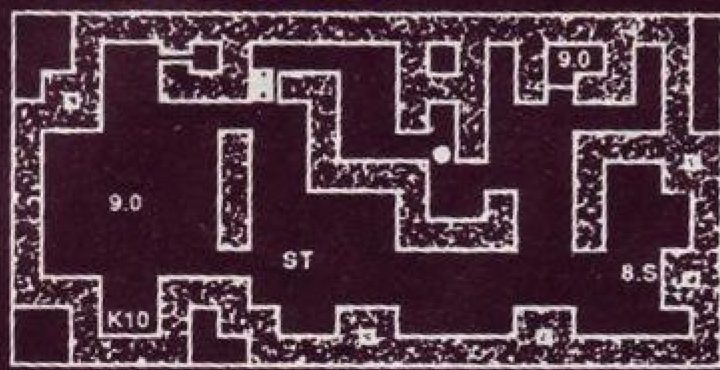
```
1 ' Ikari Warriors - disk
2 ' by Brian Warming
3 ' Amstrad Action April 87
30 FOR a=0 TO 51
40 READ a$
50 POKE 64+a,VAL("&"+a$)
60 NEXT a:CALL 64
80 DATA 3E,FF,CD,6B,BC,06
90 DATA 09,21,6B,00,11,00
100 DATA 01,CD,77,BC,21,00
110 DATA 01,CD,83,BC,CD,7A
120 DATA BC,3E,01,32,77,05
130 DATA 3E,40,32,B1,0E,3E
140 DATA 40,32,EB,5C,C3,00
150 DATA 01,49,4B,41,52,49
160 DATA 2E,47,41,4D
```

KILLER GORILLA

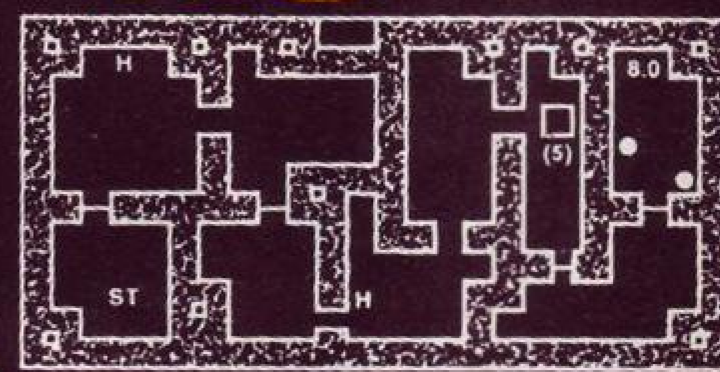
This poke from **Niall Dunne** of Waterford, Ireland, gives you invulnerability against an old favorite from Micro Power. Falling and staying on lifts too long proves, still, to be hazardous. Use Method 1.

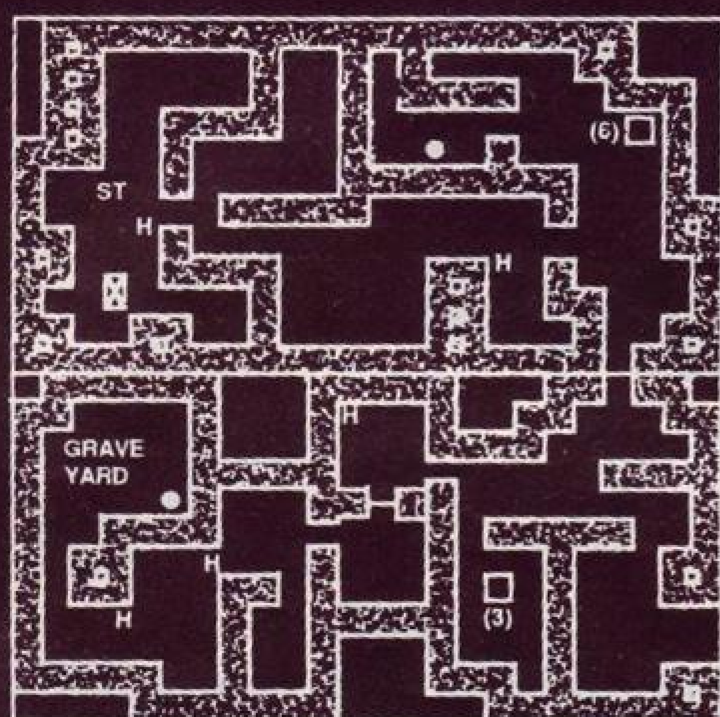
```
1 ' Killer Gorilla
2 ' by Niall Dunne
3 ' Amstrad Action
10 MEMORY &3FFF:LOAD"GAME"
20 FOR x=&4E44 TO &4E54:NEXT
30 READ a
40 POKE x,a
50 CALL &4100
60 DATA &C8,&64,&12C,&64,
  &190,&64,&1F4,&64,&258,
  &64,&2BC,&64,&320,&64,
  &384,&64
```

1a



1b

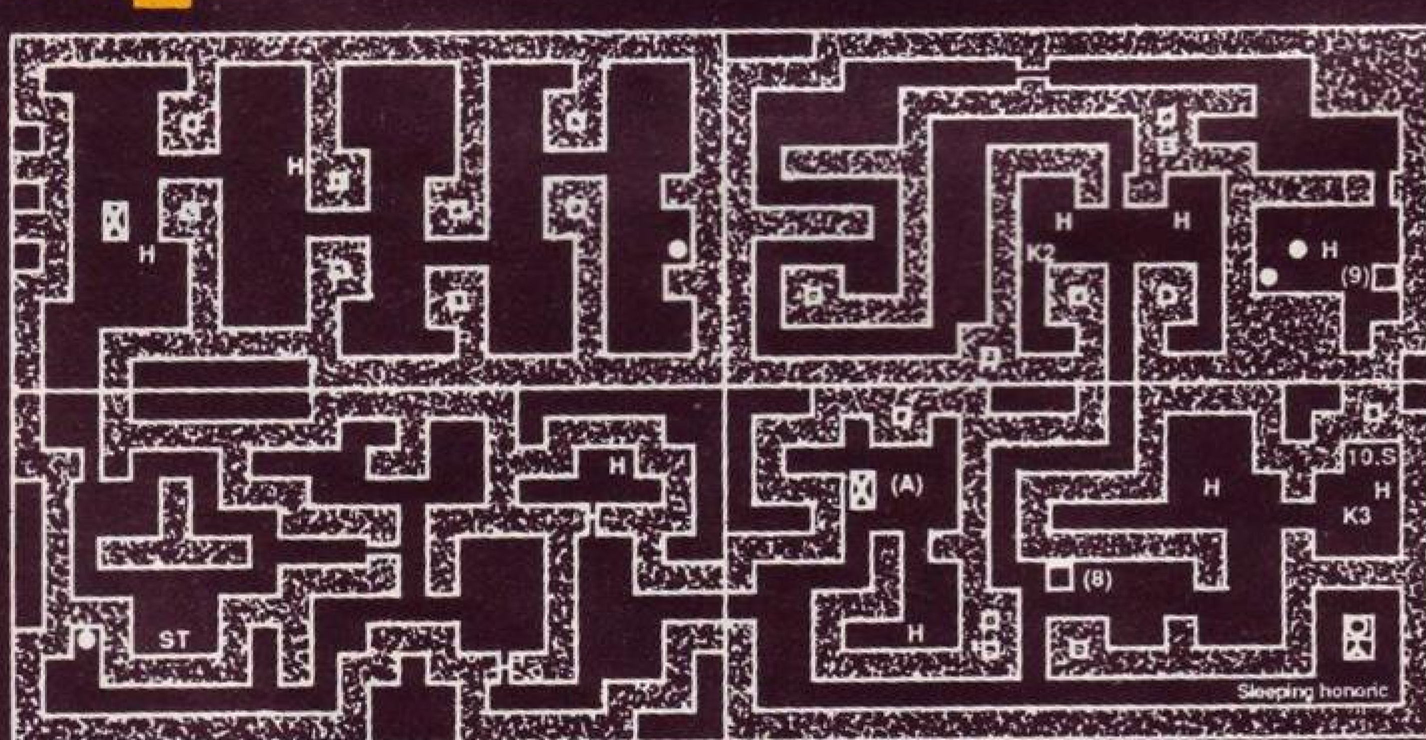




3



4







KEY

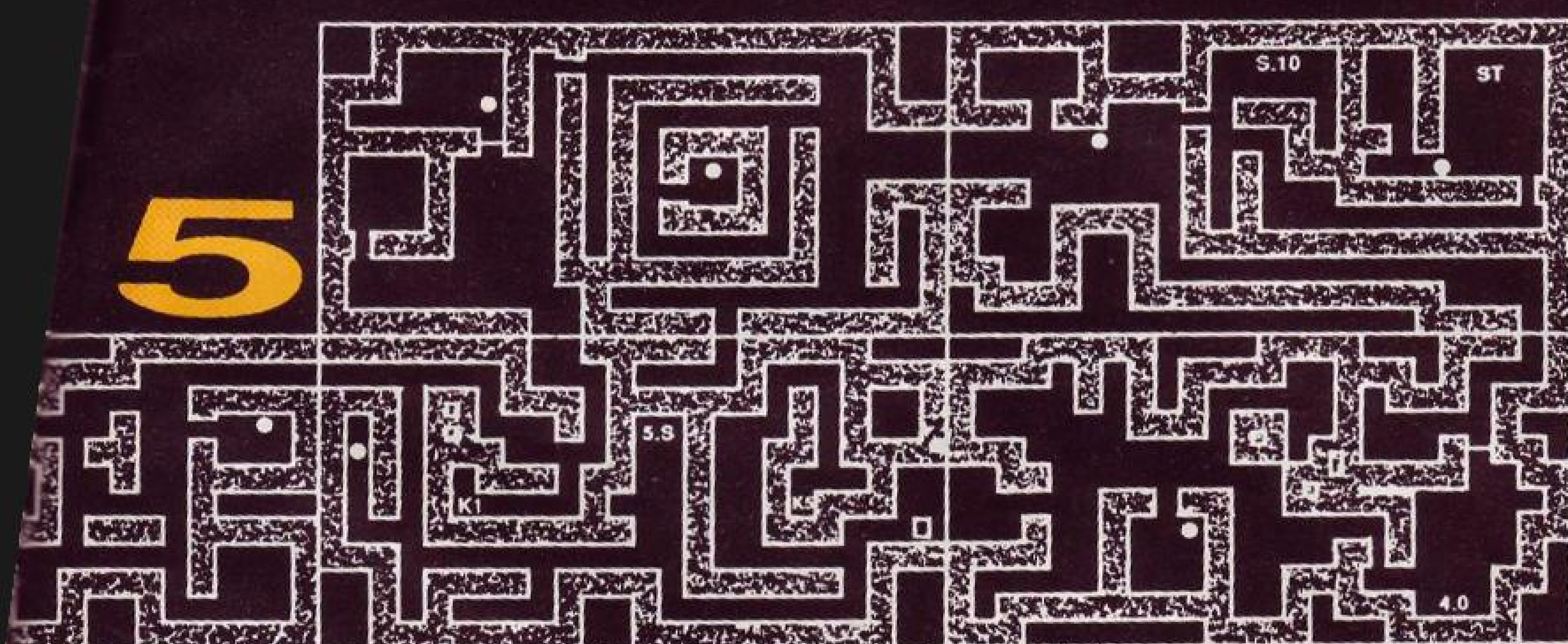
● TREASURE *K* KEYS *H* HOLE *ST* START *S* SHURIKEN

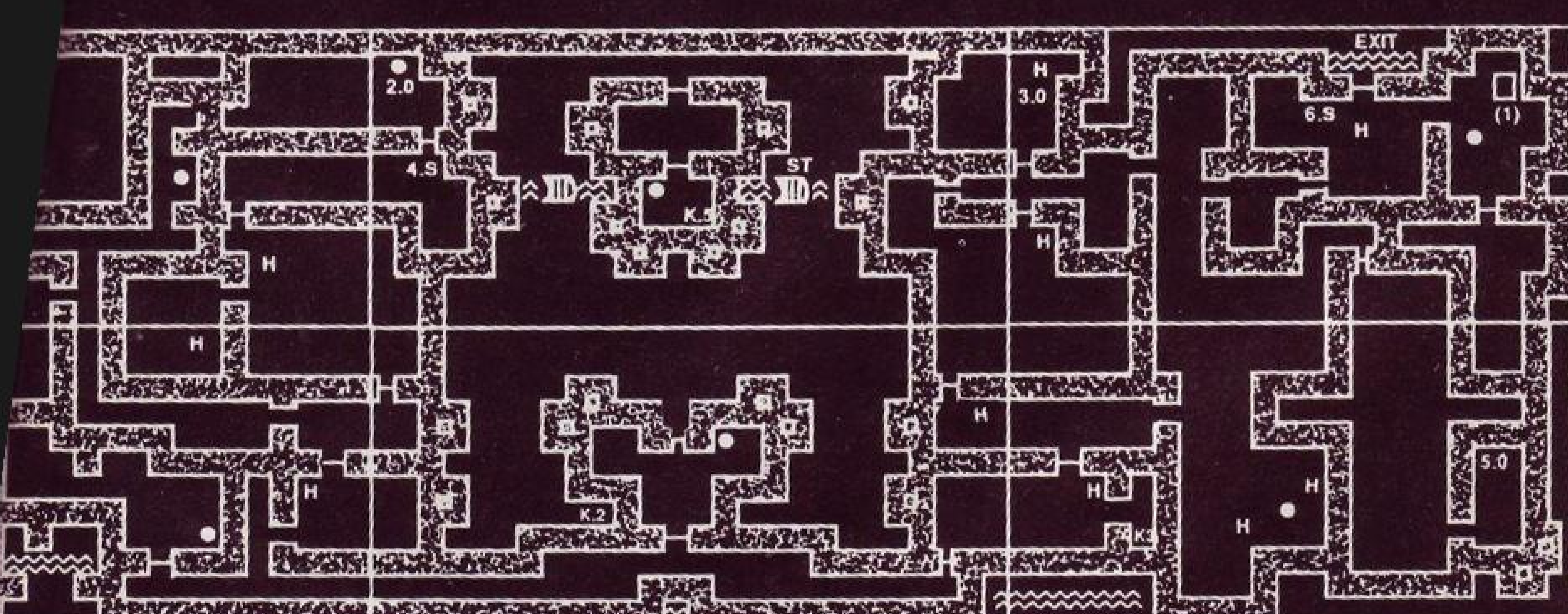
O OBJECT ⊠ NEXT LEVEL ∿∿∿ WATER ☐ GRILL

AVEN

AVENGER

5





6

CHEAT MODE

There were some excellent contributions for Rainbird's classic vector-graphic shoot-em-up, but edging out the competition by a short laser blast is *Jason Greenwood* of Hull who produced a comprehensive, informative and well-laid-out series of tips. There were some other tremendous entries as well though, notably from *Andrew Whiffin* of Broadstairs, *Thomas Warin* of Vossem in Belgium, *Richard and B Stratton* of Ewell, *Paul Prendergast* of London SW2 and *Kevin Wallbank* of Charnock.

Combat

Your main task is to destroy Starglider One (which is red). Missiles must be used to destroy it – see the table for more details. To ensure a hit get very close behind and match its speed and height, then fire. The same method applies to other targets that can be destroyed only by missiles.

When firing missiles from long range at walkers and stompers, take care not to hit any missiles they may launch at you. The destructive power of your missiles can be doubled if you ram the target and fire the missile almost simultaneously – a tricky manoeuvre but very effective.

The diamonic shuttle and the hopper don't appear until level 3 but are not worth the time and trouble it takes to destroy them. To progress to the next level Starglider One must be destroyed and your score increased by a further 5,000 points – that means level 2 at 10,000 points and level 3 at 20,000 points.

Enemy missiles can be avoided by hovering until the missiles come close, accelerating briefly and then stopping again – useful when refuelling or docking.

There's no right or wrong way to destroy the other targets with laser fire; just do what feels the most comfortable to you. However the table below should help you select the best targets to go after. It shows the number of laser or missile hits needed to destroy a target. The number of laser hits required goes up one for every second level completed, and the missile hits go up one for every fourth level. Missile hits for Starglider One go up one for every level.

Navigating

To navigate the AGAV to bases etc, use the sector and heading displays. The left number of the sector display is the east-west (*x*) coordinate and the right hand one the north-south (*y*) coordinate. The diagram shows which heading to fly on to alter the sector display correctly to get where you want to go.

Refuelling and rearming

Before you refuel at a base or dock with a power line, clear the immediate area of all enemy units, so that you won't be fired upon when it's difficult for you to return fire. For the same reason, when docking with a base, turn around the base to meet the door. When it's facing you, fly straight at it to dock. Your altitude must be below the first mark on the altimeter but there's no limit to your speed.

When refuelling you must fly between the two adjacent towers toward the single tower. Your altitude must be below the first mark and your velocity below the third mark on the speedometer for the cells to refuel. On later levels the towers will be switched off; to turn them on you have to shoot the top of the single tower. At full speed the cells will last four minutes and eight minutes at half speed. On the scanner, bases and power lines are blue and working towers have a flashing yellow dot between them.

To pick up extra equipment fly over it at low level. Proton missile has double the range of normal ones, rearview scanner allows you to see backwards, and reserve fuelpod tops up fuel in an emergency.

The following table gives the approximate coordinates of the bases and powerlines on each level.

1: bases 50/50, 11/85, 59/14, 92/61
   power 11/14, 88/34, 56/85
2: bases 35/67, 92/61, 36/10, 94/46
   power 85/11, 38/41, 35/85
3: bases 11/11, 70/46, 59/89, 92/61
   power 32/63, 84/85, 38/09
4: bases 92/61, 83/15, 36/60, 21/46
   power 81/85, 87/33, 37/12
5: bases 36/60, 92/61, 20/45
   power 81/85

Enemy	*Points*	*Hits*	*Scanner colour*
Neutron missile	2	1	yellow
Homing missile	5	1	yellow
Laser turret	20	2	blue
Pyramid mine	40	3	yellow
Armoured transport	40	3	light blue
Skim fighter	150	3	yellow
Bute fighter	160	3	yellow
Lotus starfighter	160	3	yellow
Pyramid launcher	200	3	blue
Tri-launcher	160	4	blue
Diamond mine	40	5	yellow
Egron tank	100	5	light blue
Juno cannon	140	5	blue
Starglider drone	200	5	yellow
Diamonic shuttle	300	1 m	yellow
Walker	800	1 m	light blue
Stomper	1000	1 m	light blue
Hopper	1200	1 m	light blue
Starglider One	5000	2 m	yellow



Tony Hoyle of St Annes in Lancashire has also been attacking the compilation packs: this time it's Konami's *Arcade Hits*. The disk version of *Green Beret* has been his first victim. The poke makes you invulnerable to attack and gives infinite flamethrowers, rocket-launchers and greenade (*RpM's spelling – Ed*) launchers. To use the poke type it in and run. If `File not found` appears, turn the disk over and try again.

```
1 ' Green Beret -- disk
2 ' by Tony Hoyle
3 ' Amstrad Action April 87
50 MEMORY &6FFF
60 LOAD"data0.bin",&7000
70 POKE &7160,&80
80 POKE &7161,&BE
90 x=&BE80
100 READ a$
110 IF a$="XX" THEN 150
120 POKE x,VAL("&"+a$)
130 x=x+1
140 GOTO 100
150 CALL &7000
160 DATA 3E,C9,32,3B,25
170 DATA 3E,00,32,34,14
180 DATA C3,30,02,XX
```

THANATOS

Peter Featherstone of Leeds has sent in the goods for Durell's sizzler. It is an infinite-flame poke entered using Method 1.

```
1 ' Thanatos
2 ' by Peter Featherstone
3 ' Amstrad Action April 87
10 BORDER 0:INK 0,0:
  INK 1,18
20 INK 2,1:INK 3,6:MODE 1
30 FOR f=1 TO 4:READ a:
  READ b
40 OUT &BC00,a:OUT &BD00,b
50 NEXT f
60 MEMORY 16384
70 LOAD"!BOOT"
80 FOR f=48640 to 48646
90 READ a:POKE f,a
100 NEXT f
110 POKE 32827,0:
  POKE 32828,190
120 CALL 32768
130 DATA 1,32,2,43,6,24,7,29
140 DATA 175,50,137,160,195,
  164,93
```

Scuppered again

It has to be said that the pokes in the February issue had a few problems. Another one has surfaced – *Doomdark's Revenge*. Again the problem was caused by the line numbers being changed (the offenders have been placed in the Somerton stocks and pelted with rotten reviews). There's a simple cure to the problem – line 45 ends with the command `goto 80` which should be `goto 40`.

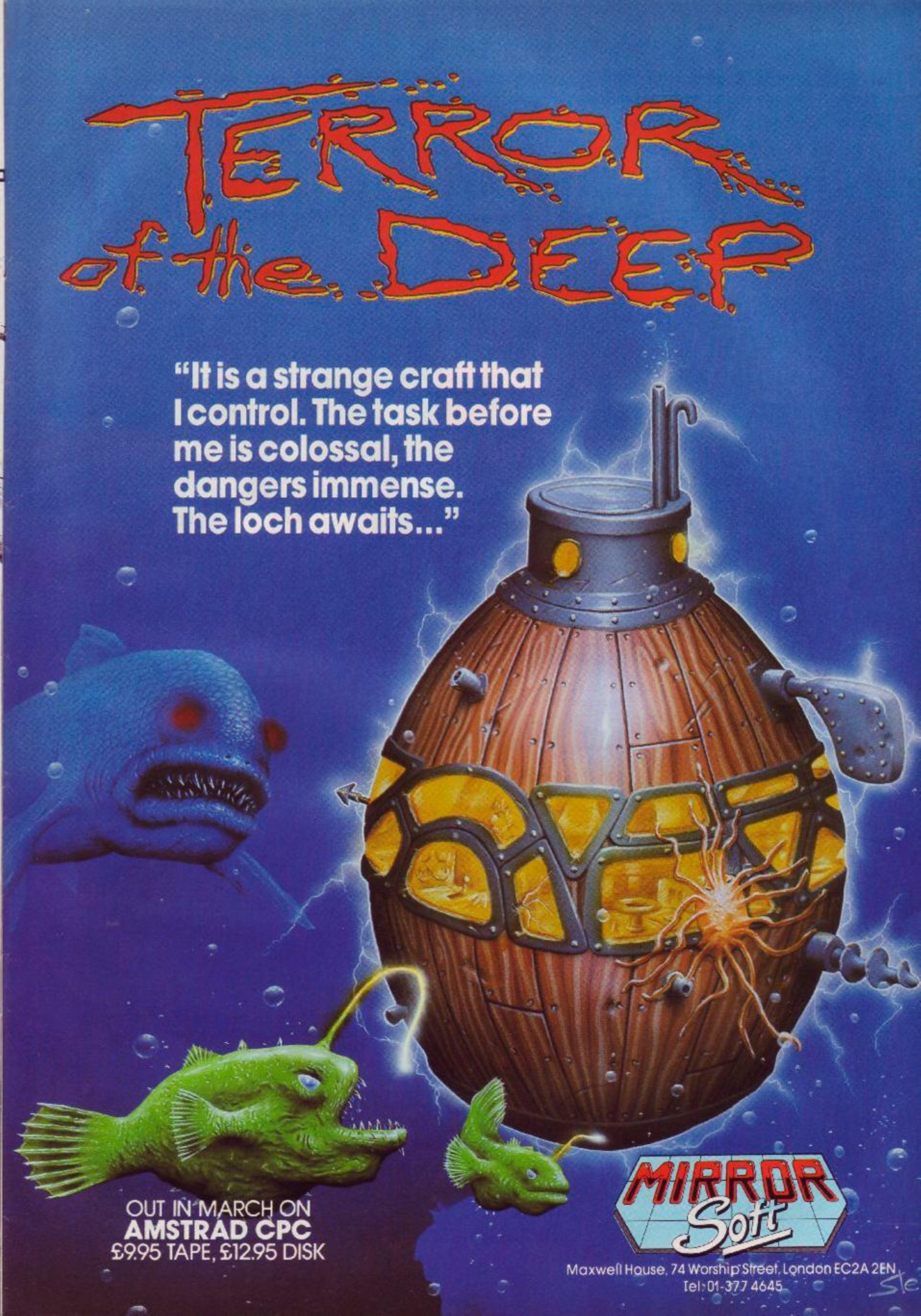
The agony is piled on by another renumbering error in March's *Gauntlet* tape poke – and it's a fair cop, guv', it was all my fault. The end of line 40 should read `then 80` instead of `then 120`, and the end of line 70 should read `goto 30` instead of `goto 70`. We'll try not to let this happen again. The flood of calls we got shows just how annoying it can be. In fact I'll stake my reputation as a brain surgeon on it.

How to win an entire issue's Rave software

Since it's a special Cheat Mode issue and it's packed with many wonderful things, I'm giving away a few more prizes than usual – it's crippling my budget but every winner deserves it. There isn't a single big prize because it was impossible to separate the high standard of contributions, but the following 10 winners can expect some goodies in the post soon.

Jason Greenwood for *Starglider* tips, **James & William Moffatt** for *Gauntlet* tips, **Ken Murfitt** for *Space Harrier* tips, **Bhasker Pandya** for *Aliens* tips, **Peter Feldhutter** for *Avenger* map, **Phil Howard** for yet more pokes, **Stephen Hooper** for his five pokes, **Peter Featherstone** for *Thanatos* poke, and **Stephen Basford** for *Zoids* and *Heartland* pokes.

By the way, we tracked down the sender of last month's *Wizard's Lair* poke: it was **Robert Brooks** of Yeovil, just down the road from us in sunny Somerset.


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"It is a strange craft that I control. The task before me is colossal, the dangers immense. The loch awaits..."
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THE PILGRIM

Well hyay there, fellow Pilgys... This month the Cowled Crusader cries INFOCOM BEWARE! Yessirreee... the PAWN is out! The legendary mega-adventure that could mark the beginning of a new era of UK adventuring for Amstrad owners. Is it really all that brill, or is it just another over-priced bundle of hype? And what about Adrian Mole's growing pains? Are they really all that painful? And should you spend £1.99 on Imagination?

Yup, these are all mighty pressing questions, so quit scratching your wizened pates and get reading...

The Pawn

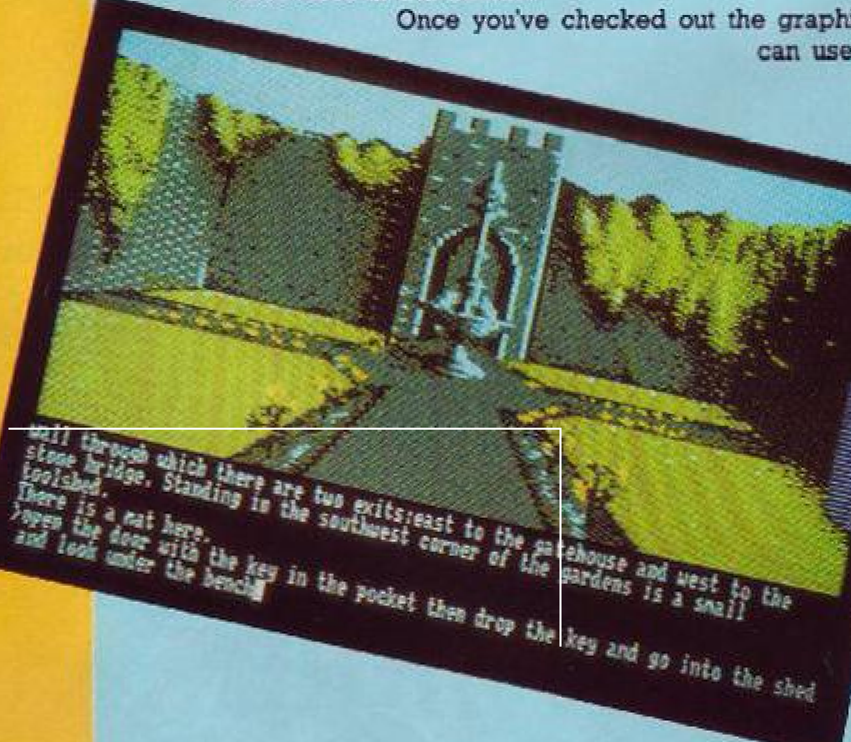
Magnetic Scrolls/Rainbird, £19.95 disk – 6128 only

Oooh, doncha just luv that Rainbird packaging! First in the glossy boxes came the Level 9 collections, *Jewels of Darkness* and *Silicon Dreams*, now comes *The Pawn* – and this has to be the hottest property yet.

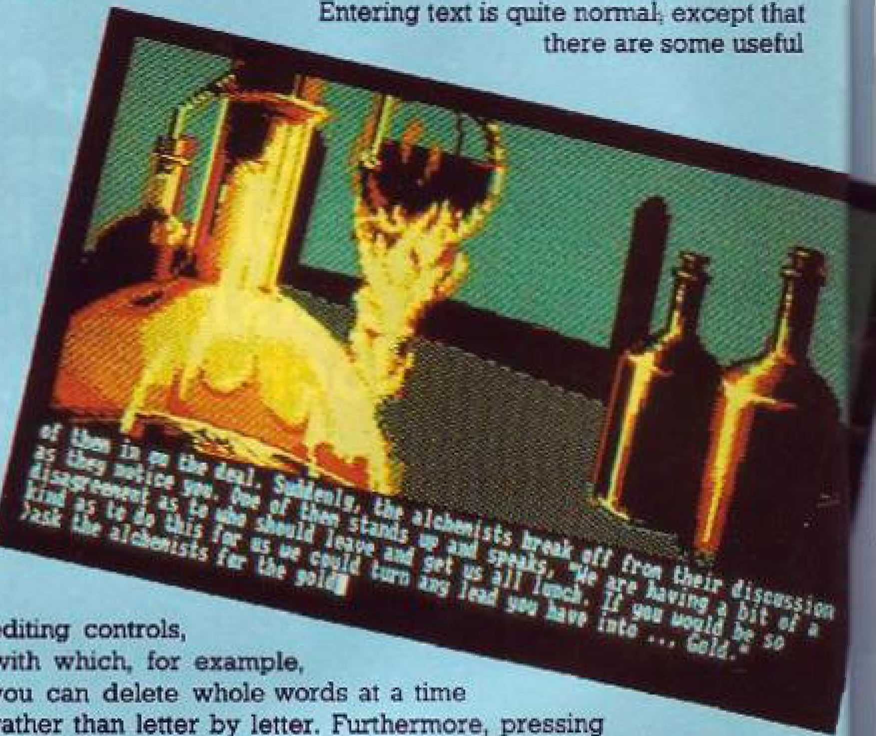
After all, I had my doubts about *The Pawn*. Everybody has been going on about it, but until recently it had only been available on 16-bit machines so the Pilg had to reserve his judgment. Of course I'd seen the pictures. Stunning. But then they should be on a 68000 machine. And I'd heard about the parser. Brilliant. But of course it could be on a 68000 machine with 256K to play with. So what do you get on the Amstrad for your pennies, with only 8 bits and 128K? Here's the complete picture...

The Pawn is a disk-based adventure for the 6128 – sorry, lads and lasses, there had to be a catch somewhere, and I'm afraid that there are unlikely to be any 464 versions for a while. It runs in 80-column mode and features some extremely beautiful graphics – about 30 in all. Not only are the pics beautiful to look at, but they are also implemented in the game most effectively. In relevant locations a picture will load from disk when you enter and scroll smoothly down over the screen, leaving the location description uncovered at the bottom.

Once you've checked out the graphics, you can use the up and down cursors to scroll the pictures up off the screen again, revealing your old inputs and responses underneath, and then down again later if you want to have another look. Checking out the pictures, incidentally, is important – they back up the text well and can sometimes suggest, for example, places to look or items to search.



Entering text is quite normal, except that there are some useful



editing controls, with which, for example, you can delete whole words at a time rather than letter by letter. Furthermore, pressing Escape will recall your previous input for editing if you made a spelling mistake.

The game itself revolves around the characters and politics of a country called Kerovnia. A 55-page booklet detailing the background to the adventure comes with the game, but you don't really need to read it to play. You do, however, need to keep it handy – the program has a protection system that occasionally requires you to refer to the booklet and enter a particular word chosen at random from the book.

Principal characters in Kerovnia are King Erik, who has upset the Dwarves; Kronos the Wizard, who upsets almost everybody; a Guru; an adventurer; and various others, all of whom you can converse with to a limited extent. The characters lead reasonably independent lives and proper interaction with them is essential to completing the game.

The aim of the game is somewhat diffuse. You receive different objectives as you play and are set different tasks by different characters. Some of them seem to be a little harsh – for example there's a polite adventurer who rides a legless horse – you've got to kill him, however strong the bonds of comradeship!

In the final event, however, you must remove a silver wristband which has appeared on your arm. Trying to do this will lead you in and out of many situations and almost certainly result in loss of life at various points! Numerous saves will be required, but since this is a disk-based game, that's relatively painless. The only problem here is that you save by filename, so it would have been nice to have a directory option within the game that you could use to check your "save" disk to see what filenames you've used and what's available.

Playing *The Pawn* is extremely absorbing – in fact it's almost up to the standard of the later Infocom releases, and certainly a step ahead of anything like *Zork*. The parser is excellent, allowing most constructs and complex commands. You can use pronouns, `all`, `except` and other words to build up very intricate commands. For the most part, however, I didn't find it necessary to be complex in my inputs – most of the puzzles require logic or intuition to solve

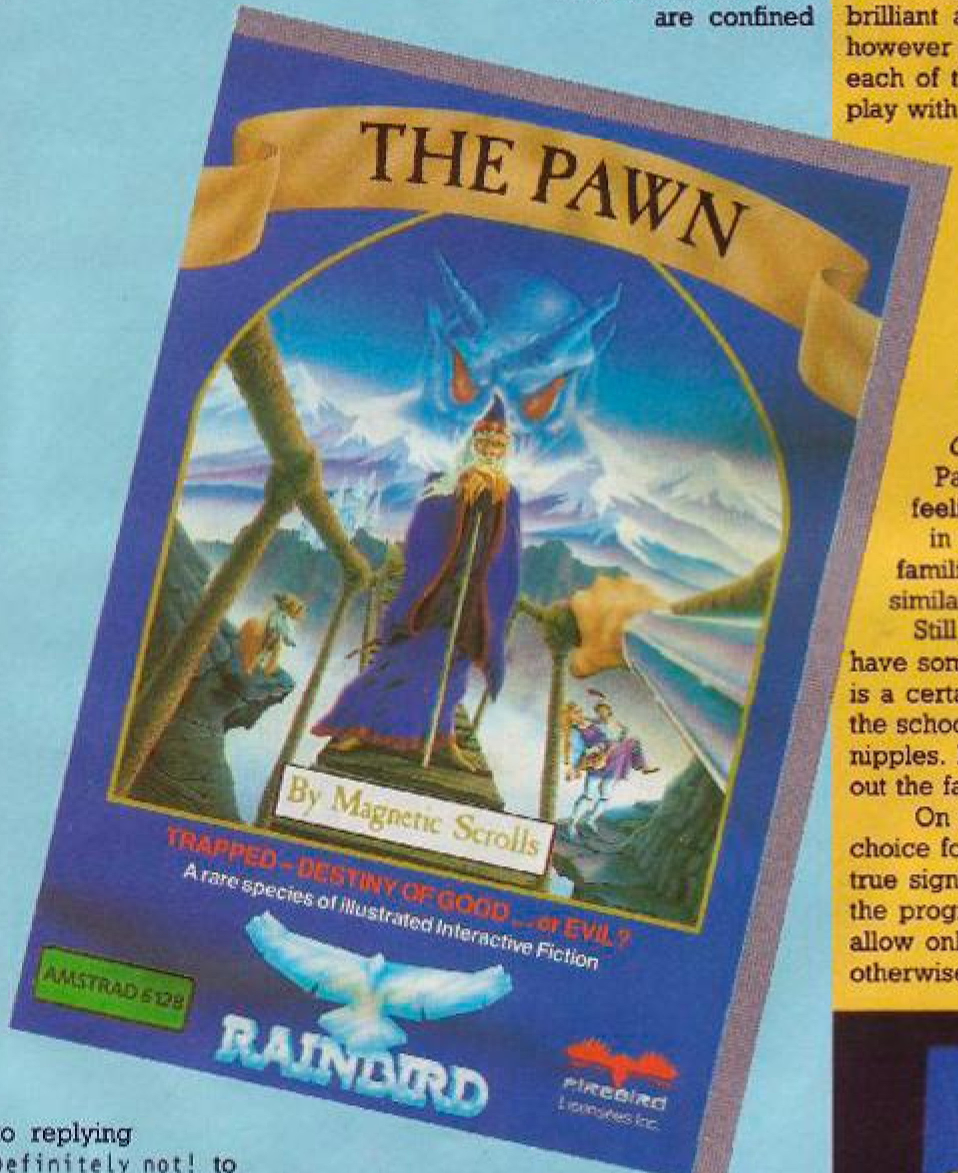
them, not wordplay. Thumbs up for *The Pawn* in that respect, certainly.

If you do get stuck, there's an inbuilt hint facility – you type `hint` and then enter a series of codes that appear in the back of the booklet in answer to particular problems. Some of the hints are rather ambiguous, but as your score increases you get access to more straightforward solutions. However, this is one game where I found myself prepared to do battle without hints – the puzzles have an engaging quality that tempts one to solve them, not to bypass them with easy solutions.

Combine that factor with the vivid atmosphere of the program, generated partly by the graphics and partly by the text descriptions, which are reasonably long and very well written – and you've got a pretty addictive experience ahead of you.

What's more, the characters obviously make a big difference. The Pilg is always going on about the need for interaction between player and game characters, and in *The Pawn* you can `ask` someone about something; `say to` someone, something; `say` something; or just, `someone, something`. In each case you'll get a reasonably coherent reply.

I was, however, slightly disappointed by the scope of responses and intelligence of the characters I met. Most of them are confined



to replying `Definitely not!` to most questions or commands, but there are enough sensible replies to be had to maintain one's interest in the gentle art of conversation. Certainly better than most other UK games – but perhaps I've been spoiled by Infocom's *Suspect*.

The Pawn is an excellent and inventive game. It must now command a far larger audience than when it first appeared on the QL three years ago, and it deserves it. If Magnetic Scrolls' next game, *Guild of Thieves*, due out later this year from Rainbird, can improve on this then we're in for some real UK-sourced adventuring that will give Infocom a very tough time indeed.

Atmosphere 91% Challenge 93% Interaction 90%
***AA* Rating 92%**

The Growing Pains of Adrian Mole

Virgin/Mosaic/Level 9, £9.95 cass, £14.95 disk

Well, I've seen it all now. First we had Level 9 games, then we had Level 9 games marketed by Mosaic, now we have Level 9 games programmed by Level 9 "in conjunction with Mosaic" and marketed by Virgin. Is this because nobody wants the responsibility for them? Or because everybody does?

I'm tempted to think it's the former. When the first Mole game came out, featuring scrolling text and Level 9's "multi-tasking" graphics, I and many others thought the idea cute and the game well-written. Just in case you missed it, it involved reading long blocks of text (as in the original book, but with bits added by Pete Austin) and every now and then making a decision by pressing 1, 2, or 3 and seeing what happened in the plot as result.

That worked well and sold, I presume, quite well too. Then came *The Archers* – same technique, same features, but no real advances on the original and – in the Pilg's view – not quite such a brilliant adaptation as the original Mole game was. There were however quite a lot of characters to deal with in the Archers, and each of the three separate loads gave you a different persona to play with.

Now we've got Moley again, and I can't really think of anything new to say about it. Once again you must keep in favour with everybody by selecting the right decisions, and in this game as in the earlier one this involves for the most part balancing the attentions of your parents, your friends, Pandora, and the dog together. Do that, and you'll rise from the ranks of "Namby-Pamby Schoolboy" with around 40% to – who knows? Poet Laureate? With 100%.

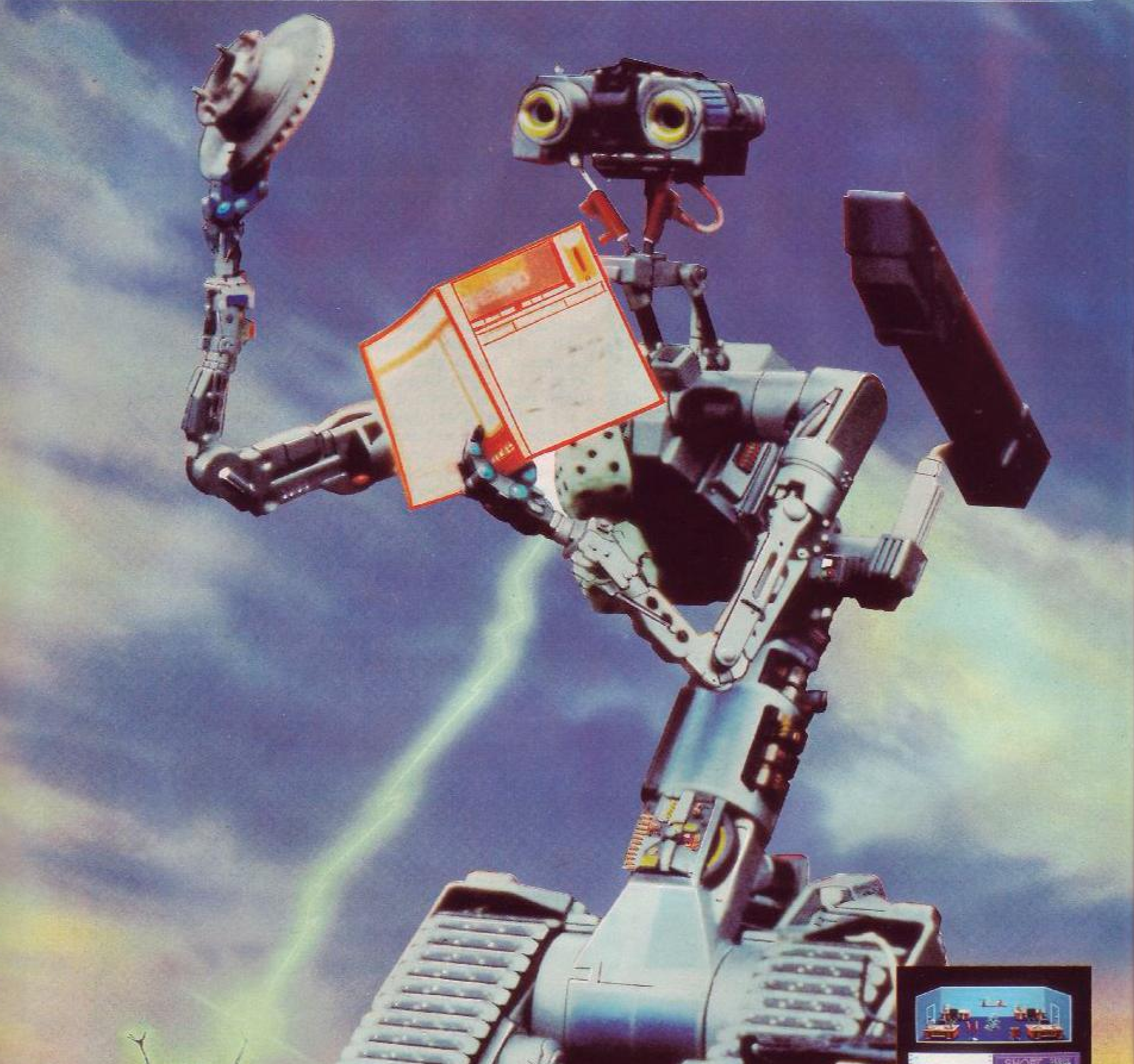
After playing *The Archers* I felt somehow that *Growing Pains* suffered slightly by being so centred round Pandora and her gang. Pete Austin does seem to have a feeling for the Adrian Mole character which shows through in the text, but somehow the whole subject seems rather too familiar and the growing pains of our hero seem altogether too similar to the social agonies he suffered in the first game.

Still, that first attempt wasn't too bad, and *Growing Pains* does have something going for it. As with the others in the series there is a certain instant satisfaction in deciding whether to walk out of the school hall in protest, or take a closer examination of Pandora's nipples. Not that there's any smut here, but I advise you to check out the fancy-dress party!

On the other hand, I find that one drawback of this "multiple-choice format" is that decisions you make are somehow robbed of true significance when some moments later they are reversed by the program! The obvious reason for this is that the program can allow only a modicum of independence on the part of the player; otherwise the amount of text storage required for the different



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story-lines would be mind-boggling. And I can't help feeling that this sort of game structure really requires more storage space than you're ever going to get on a home computer, however clever Level 9's compression techniques may be.

Meanwhile, I think that if I had this game on disk, I would probably load it up with reasonable regularity. I didn't find myself playing it for hours on end, but every so often I sat down and tapped



away quite happily for a while. Some of the textual humour is quite amusing, and there is still a surprising amount to get through in each of the three parts.

Value for money? If someone gave this game to me I'd be grateful and probably get their money's worth out of it. Whether I'd bother to spend my own is debatable.

Atmosphere 75% Challenge n/a Interaction n/a
***AA* Rating 75%**

Imagination
Firebird, £1.99 cass

Here's another budget game from Peter Torrence of *Subsunk* and *Seabase Delta* fame. Both these earlier efforts were excellent value, and the Pilg had no doubts on loading up *Imagination* that it would be a worthy follow-on.

The game has all the looks of a typical GAC creation – slightly crude but attractive shaded graphics up top and a Mode 1 scrolling text window below. However, the game scenario itself is highly original. On loading the adventure you are confronted by a computer which, of course, you must get working using a nearby disk. Type `insert disc` and you're away!

What you then get, if you `examine screen`, is an option to play any one of four games. These are:

1 2002 – A Very Odd Day in Space.
2 The Lords of Half Past Nine.
3 Panic Miner 9000 and 90 Niner
4 Raid Over Margate.

Sounds familiar?! Entering the appropriate number then takes you into the relevant game, but instead of playing it as normal you will actually be taken inside the game-world itself, where you must solve a number of puzzles in your efforts to discover (I think) the number of stars in the universe.

There are some very amusing bits in these game sequences. Among other things you'll see barely disguised take-offs of Level 9 graphics in the Lords of Half Past Nine; you'll thrill to the smell of dogs on the sea-breeze at Margate (the opening graphic of which bares a remarkable resemblance to the screen-layout of a once-popular arcade game); or you'll spend a hazardous few minutes climbing up and down ladders and dodging sprites in – you guessed it – Panic Miner.

You can get out of each game scenario by entering `quit` – very necessary at several points in the game since obstacles discovered in one game will often be overcome only by using objects found in another. None of the game scenarios is that big in the way of locations, but you'll be kept busy moving about collecting the things you need and trying to solve the various logical but quite tricky puzzles.

Really, for £2 you can't go wrong here. Don't expect an epic game, but at that price you don't deserve one.

Atmosphere 55% Interaction 58% Challenge 65%
***AA* rating 75%**

Lords and Ladies of Adventure

Once more the roll-call of the brave and battle-weary is printed on these hallowed pages. Remember that should you fall upon the path, one of the following Lords and Ladies will be prepared to answer your call for help ... providing you send a stamped addressed envelope and forbear from phoning at anti-social hours!

Castle Blackstar, Terrormolinos, Forest at the Worlds End
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Terrormolinos, Urban Upstart, Red Moon, Gremlins, Hobbit, Marsport, Dun Darach
Lee Anthony, PO Box 424, Althorne, Chelmsford, Essex, CM3 6UR

Twin Kingdom Valley, Hobbit, Heroes of Karn, Very Big Cave Adventure, Lords of Time, Castle of Terror, Collossal Caves, Hulk, Sorcerer of Claymorgue Castle, Bored of the Rings, Quest of the Holy Grail, Magicians Ball, Snowball, Return to Eden, Worm in Paradise, Emerald Isle, Red Moon, Price of Magik, Seabase Delta, Mindshadow, Ten Little Indians, Circus, Waxworks, Perseus and Andromeda, Escape from Pulsar 7, Gremlins, Robin of Sherwood, Secret of St Brides, Fourth Protocol, Pirate Adventure
Phil Symonds, 29 Goliath Close, Roundshaw, Wallington, Surrey, SM6 9HN

Message from Andromeda
Stuart Whyte, 53 Ridgeway Road, Timperley, Altrincham, Cheshire, WA15 7HL

All Level 9 adventures, Brawn Free, Classic Adventure, Forest at the Worlds End, Jewels of Babylon, Mindshadow, Never Ending Story, Qor, Smugglers Cove, The Boggit, Trial of Arnold Blackwood, Castle Blackstar, Dun Darach, Heroes of Karn, Message from Andromeda, Mordons Quest, Project Volcano, Seas of Blood, Souls of Darkon, The Hobbit, Warlord
Joan Pancott, 78 Radipole Lane, Weymouth, Dorset, DT4 9RS.
Tel: (0305) 78 4155

Mindshadow, Never Ending Story, Espionage Island, The Hobbit, Price of Magik, Message from Andromeda, Heroes of Karn, Return to Eden
Rod Dunlop, 43 Sutherland Avenue, Pollokshields, Glasgow, G41 4ET

Never Ending Story, Message from Andromeda, Eye-Spy, Mindshadow, Subsunk, Seabase Delta
Paul Berrecloth, 48 Aldsworth Road, Victoria Park, Cardiff, CF5 1AA.

Pilgrim's postgab ...

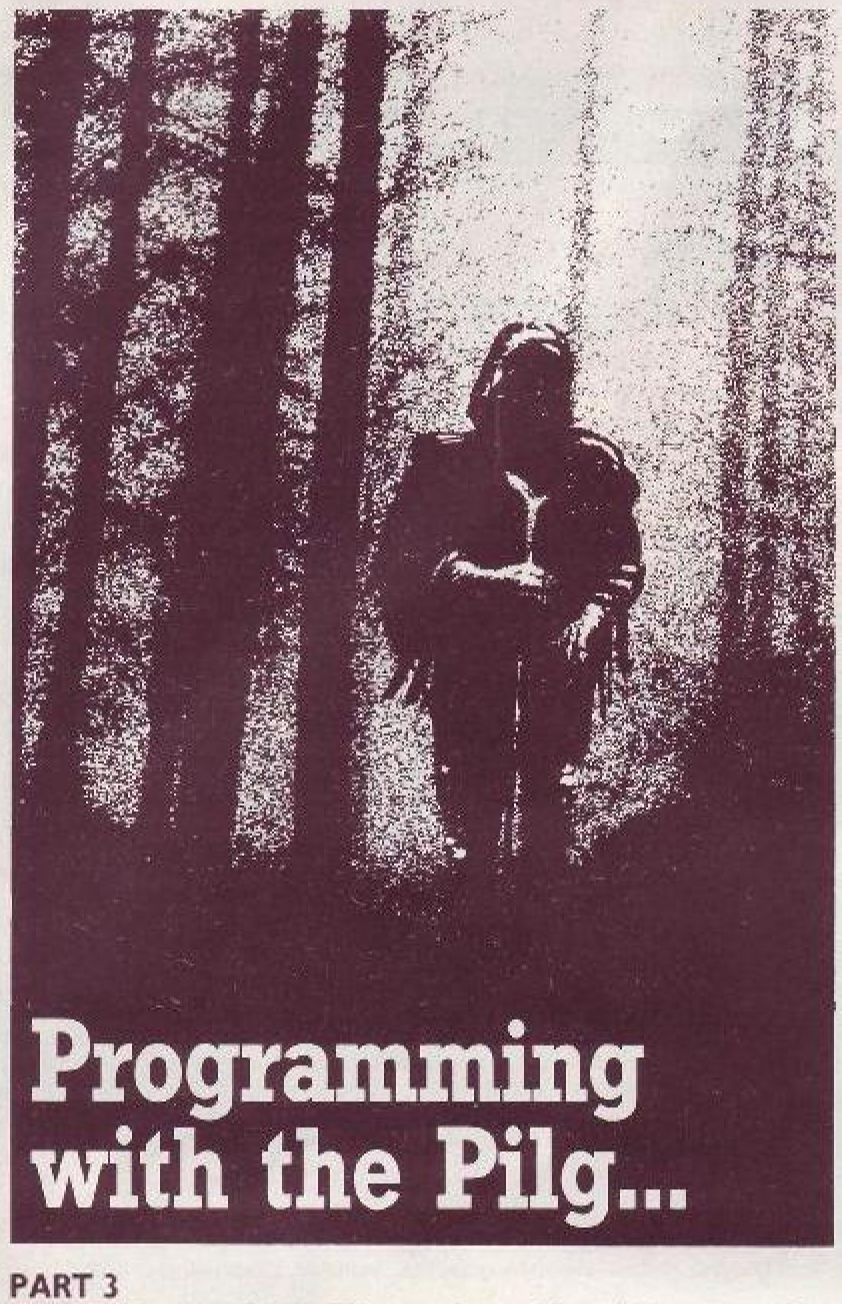
Wot, no tips? Wot, no letters this month??? Wot's going on?

Apologies, dear readers, but once again the Pilg is stuck for space. Next month, however, we'll print more of your letters, plus as a special treat a bumper Clue Cauldron on *Hitchhikers Guide to the Galaxy* and other games. Plus, of course, a further instalment of the Pilg's guide to adventure programming.

There is room for just one item, however. It's not often the Pilg apologises in this column (he's far too obstinate) but I think some apology is due to Pat Winstanley and Sandra Sharkey of Adventure Probe/Adventure Contact and their friends. Last month the Pilg – who's a jokey fellow when he's imbibed a few pints of ale – printed a letter praising the efforts of Ms Sharkey in such profuse terms that I suggested money might have changed hands...

Now it was my *intention* that this should have been taken as a joke. After all, I've mentioned these parties before and by doing so given them my blessing, and I certainly wouldn't print such a letter if I *really* thought someone had bribed the author – and I'm sure that most readers realised this.

However, those readers who are suspicious enough to think that either Ms Sharkey or any of her friends would ever really contemplate slipping someone a fiver (or a tenner), or that I would ever print such a letter believing that to be the case, should rest their case immediately. And of course my most sincere apologies to both Pat and Sandra for any doubts this may have unintentionally cast upon their integrity.



Programming with the Pilg...

PART 3

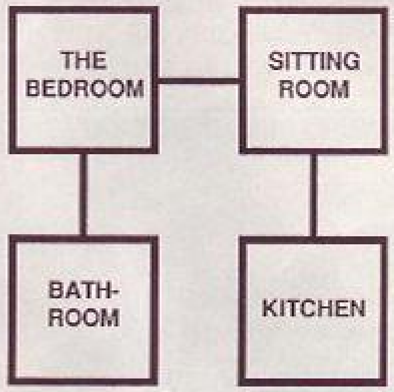
This month the Pilg continues his guide to creating your own game with a look at objects and characters – two essential ingredients of any successful modern game.

Vivid and original *location descriptions* are essential to a successful adventure, particularly if the game is text-only. But no less important are the *objects* and *characters* that a player will encounter while exploring your "micro-world". For some reasons, although programmers are pretty hot on including objects in their games, characters seem to get left out. This is a pity, because anyone who's played a game like *The Hobbit* will know that a couple of dwarves (for example) – even if they're fairly stupid dwarves – can make all the difference to an adventure.

You'll see later that sometimes there is little difference between objects and characters, at least as far as the programmer is concerned. In fact a good programmer's main concern when designing a game is to ensure that, if characters are included, they live up to their name and do not simply degenerate into "human objects". One commercial adventure I reviewed in 1984 had a location in which the player was informed that `You can see: a girl.` Nothing wrong with that, but then entering `Get girl` resulted in the message `You take: the girl` and typing `Inventory` revealed that `You are carrying: a girl.` Quite apart from being offensive to half the human population, this is a perfect example of how *not* to include characters in your game.

One of the reasons for the poor use of characters in adventure games is the fact that – especially if you're using Basic – the routines necessary to handle them can take up a lot of space. In the next section, however, we'll look closely at ways of programming characters effectively – and you'll soon see that having a few friends running around inside your program is not only relatively easy, but also great fun.

However, let's take a look at objects first. Let's go back to the map of our mini-adventure which we looked at in the last issue...



Now let's add three objects, one in each room. We'll put a laundry basket in the bathroom, a dirty handkerchief in the bedroom, and a slice of mouldy bacon in the kitchen. These "object descriptions" can be stored in memory in a similar way to our location descriptions. The first thing we need to do is to give each object a number, just as we allocated numbers to the locations. We'll call the basket Object number 1, the handkerchief 2, and the bacon 3. This number will reflect the order in which the object descriptions are stored in our data statements, arrays, memory locations, or whatever and enable us to locate a description quickly and easily.

However, we also need to include a good deal of other information. First and most obviously we need to know where each object is. This doesn't just mean which location it's in; it may also involve checking to see whether the object is being carried by the player (or another character). Other questions that will need to be answered during play might include:

- Is the object portable?
- How much does it weigh (i.e. will the player have to drop something else to carry it?)
- Can it be broken?
- Can it be seen?
- Is it edible?
- If it's a chest or something similar, is it open or closed?

And so on. As you can see, introducing objects raises a lot of questions.

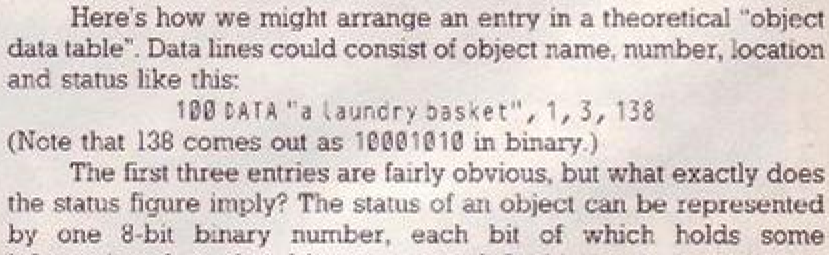
The best thing to do is to ensure that the status of an object is comprehensively "flagged" so that you can use a few simple routines in your program to deal with all eventualities. Once again we can do this by using binary numbers with their bits set or reset as appropriate – just as we did with the "exit codes" for the locations last month.

Here's how we might arrange an entry in a theoretical "object data table". Data lines could consist of object name, number, location and status like this:

```
100 DATA "a laundry basket", 1, 3, 138
```

(Note that 138 comes out as `10001010` in binary.)

The first three entries are fairly obvious, but what exactly does the status figure imply? The status of an object can be represented by one 8-bit binary number, each bit of which holds some information about the object concerned. In this particular example, the "bit significance" of the number could be interpreted as shown here:



Assigning meanings to the eight bits


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The first point to notice about this arrangement is the way that *bit pairs* have been used to flag several different conditions. For example, bits four and five are used to check whether an object is either edible, drinkable, destructible, or none of these. Because the same two bits are used for all four conditions, these conditions must be *mutually exclusive* – in other words, using this system an object cannot be both edible (11) and destructible (10) at the same time.

Using bit pairs like this can often be more convenient than using a single bit for each condition, but you've obviously got to be careful how you assign them – making sure that the conditions involved *are* mutually exclusive and do not involve groupings like (for example) openable/portable, since an object that can be opened in your game might very well be portable as well.

Look at bits zero and one. These also represent mutually exclusive conditions, this time to flag open/closed conditions. Using this particular bit pattern, a chest (for example) could not be simultaneously "locked" and "not openable", which may seem awkward, but of course although locked the chest *is* openable – provided you have the right key.

Bit six in this system has a special role which you might wish to use in your own games. It is used to indicate that, whenever the player `examines` the object, a further description should be printed. Take a treasure chest for example. If it was encrusted with rubies, the player might not be able to see these although the chest itself might be a visible object. If, however, the player were to enter `Examine chest`, and bit six was set to one, the program could then chain in the message `It is encrusted with precious rubies`. If bit six is set to zero, the command to examine the chest would simply receive the reply `You see nothing special`. We'll see this system at work later in the sample program.

We can now see that our laundry basket has been accorded the following status in the table above: it is visible; it cannot be eaten, drunk, or destroyed; the chain bit is set to zero, so examining the basket will simply get the response that you see nothing special; it falls into the middle weight category and can therefore be carried without too much effort; finally, it is open, so if the player enters `Open basket`, the answer will be `The basket is already open`.

Most objects can be dealt with in this manner or in a similar fashion, and using this method, whenever the player wants to do something with an object we can cover most of the normal commands simply by checking the status byte.

There is however one other category of objects (apart from characters) that we need to look at, particularly since it is a category that is often left out of commercial adventure games, much to their discredit. How many times in a game have you entered `Examine floor` or `Examine wall` and been told `You can't do that`, or something similar? I don't know about you, but this often happens to me and I find it most discouraging.

The best answer to this problem is to include a number of other objects in our game – objects that cannot be manipulated in any way by the player or the program, but whose names will be understood by the program (so an error message isn't generated) and which can be examined, although not necessarily to the player's advantage.

You might ask why we should bother to include objects in the game if they don't have an active role to play. It is in fact very important if you want to produce a game with a really life-like feel to it. Just imagine the difference between a program that, when you want to examine the floor replies `You can't do that` or `I don't understand the word 'floor'`, compared to one which says: `You go down on your hands and knees and take a good look at the floor. Suddenly you realise that everyone is looking at you -- and you look mighty stupid!`

Well, which game would you rather play? It's little touches like this that make the difference between, say, an Infocom adventure which will keep the player hooked for weeks, and a poorly designed game that really belongs in the wastebin and not on your shelf. Commercial software houses have been getting away with the you-can't-do-that type of games for far too long. There's no need to follow their example, and if you follow the tips we'll be giving later, you won't have to.

Let's now take a look at characters. Well-designed interactive characters can make the difference between an average game and a number-one bestseller, so it's worth taking a great deal of care over how they are used. If you've ever played *Fantasia Diamond* (by Hewson Consultants) you'll know just what I mean – the toy robot in this game is a truly engaging character who, by steadfastly going about his business and leading the way into the unknown, really contributes enormously to the enjoyment of the adventure. You, too, can create similar computer-controlled companions.

There are two main differences between characters and other objects, both of which are pretty obvious if you think about it. The first is that a character can move from location to location without (necessarily) being carried by the player. This means that somewhere in the program there will need to be a "character handler" routine which checks the position of characters and, either at random or for a reason, moves them from one location to another.

The second, and most tricky, aspect of characters is their ability to communicate with the player under certain circumstances and – even trickier – for the player to be able to answer back. We therefore need a whole nest of routines to deal with the circumstances that might arise between characters and the player and even, if we really want to be clever, between characters and other characters and objects.

Ideally a character should be able to perform some or all of the following functions:

- Pick up, carry, and use objects.
- Move from location to location.
- Talk and otherwise relate to the player.
- Avoid repetitious behaviour.

A good example of a character that fell down badly with regard to point number four is Thorin in the tape version of *The Hobbit*, who continually sits down and starts singing about gold – often in the most incongruous circumstances. To be fair to Melbourne House, however, programming interactive characters can be a complex task and invariably compromises have to be made. Next month, we'll see how characters can be implemented without too much effort.

We'll also look at decision trees! The Pilg was hoping fervently that we'd be able to tackle this burning issue in this month's copy, but as usual we've needed all the space to cope with other more immediate topics. So keep your hats on and your beards pointed in the right direction – next month will reveal all! ***AA***

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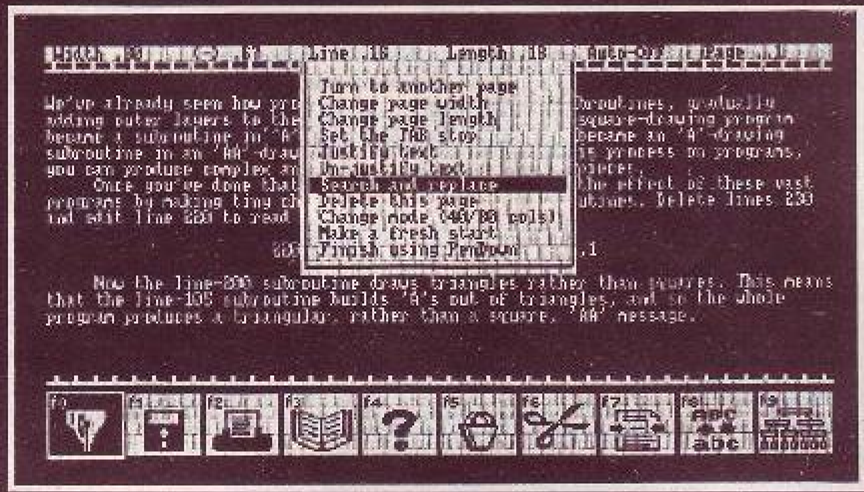
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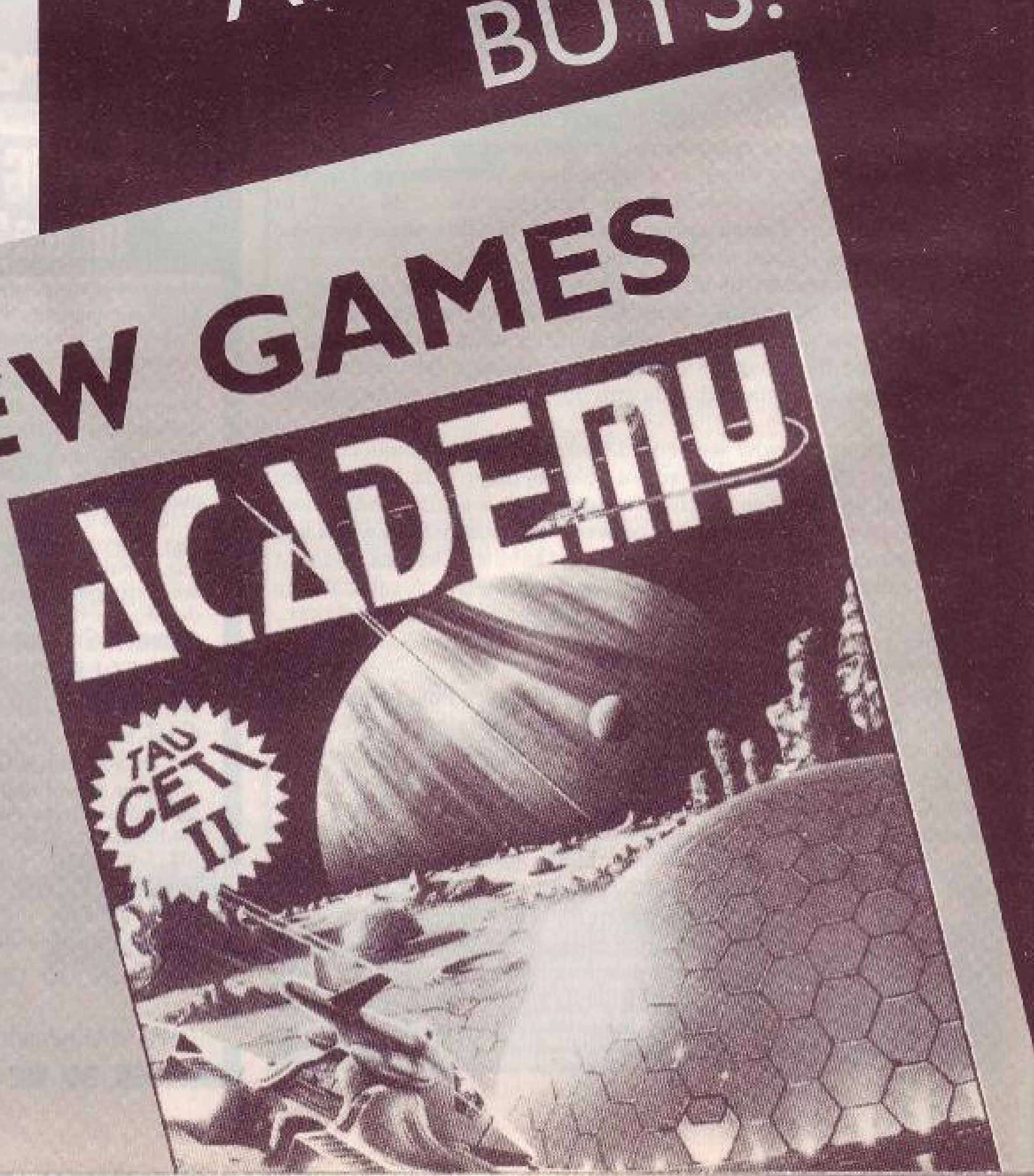
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ABOUT PENDOWN

PenDown was developed originally on the BBC micro as a word-processor for children. The idea was to have a program which you could use immediately, and the program certainly proved a big hit with kids at schools around the country. But not just with kids. Adults too found its straightforward approach appealing and extremely easy to learn. Converted now (superbly) to the Amstrad CPCs it seems an ideal family purchase.

Despite the fact the program has an excellent manual, much of its operation is obvious from word go. You decide where you want to start typing, move the cursor to the right point with the arrow keys and then just type away, the text automatically flowing to fill the page width you've selected.

The wide range of editing functions are accessed from simple pull down menus. These include highly original options such as a dictionary to help you select the correct spelling of a word. Other powerful word-processing functions such as search-and-replace are also supported.

THE NEW SYSTEM

Regular users of AA Special Offers will notice that the ordering system has changed slightly this month. To make things simpler you now use a single form for items on special offer AND other mail order items. This means special offer items now count toward a free gift, so they're better value than ever.

To find the form, turn on two pages.

HOW TO ORDER

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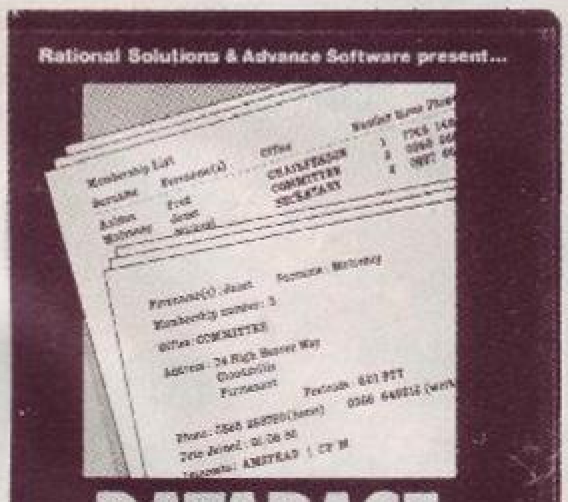
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For CPC6128 only



This program from Advance Software and Rational Solutions is probably the best database you can buy for a 6128. It's fast, full-featured, powerful and well-tailored to the needs of the machine.

It's also extremely flexible, so you can customise it to a huge range of situations where information needs to be organised and quickly recalled or analysed. An address file, a customer list, a record of your massive LP collection. Whatever.

Features include:

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- You can set up relationships between data in different files – very powerful facility!
- Records can be sorted – you can index up to five fields in each file.
- Powerful data transfer utility making it easy to upgrade to this program.
- Nine field types including normal alphanumeric, three types of numeric, date, hours/minutes/seconds, automatic serial numbering.
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All in all, a wonderful way of putting your Amstrad to serious use.

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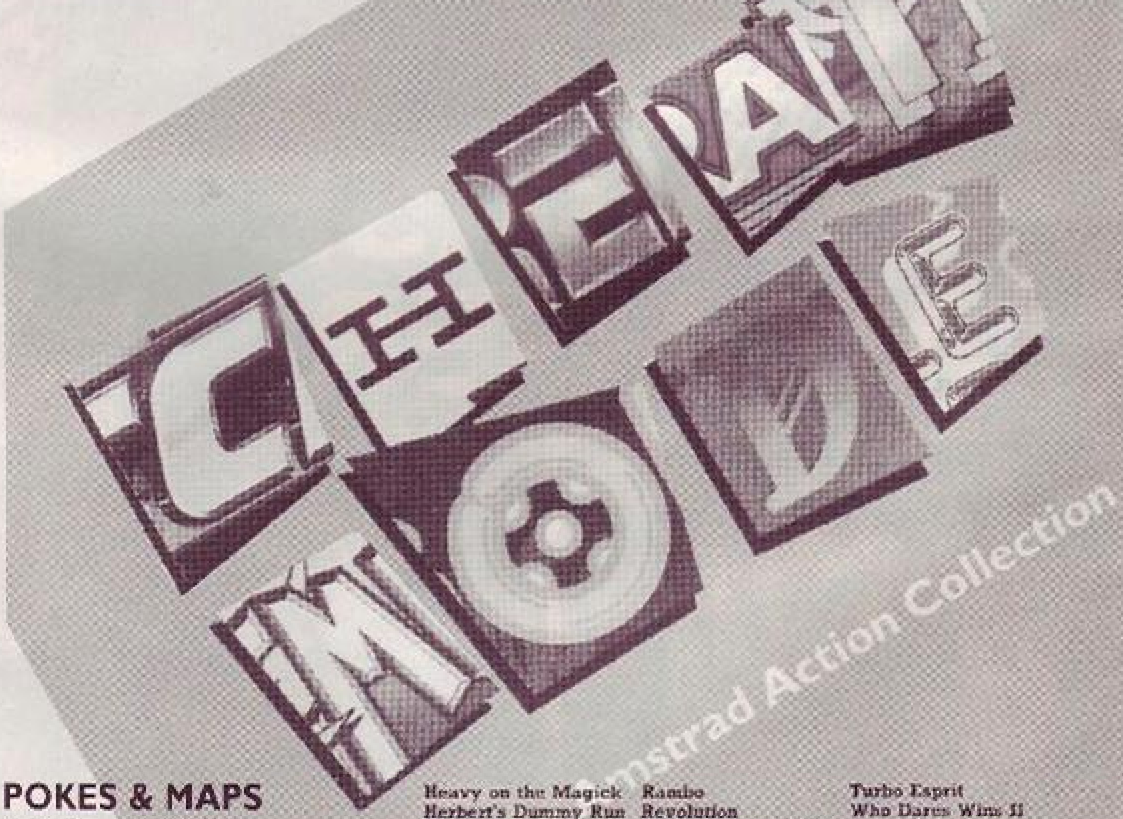
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The subscription price covers all postage and packing, plus the extra cover price of any 1987 special issues. It also guards against future price rises and could entitle you to reductions on some reader offers. (For example, existing subscribers are able to buy the books offered on these pages at a reduced rate.)

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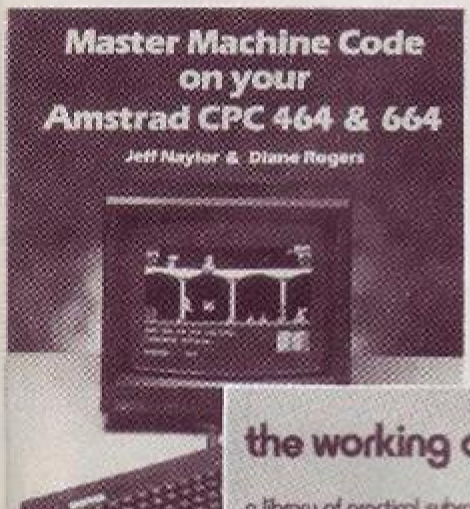
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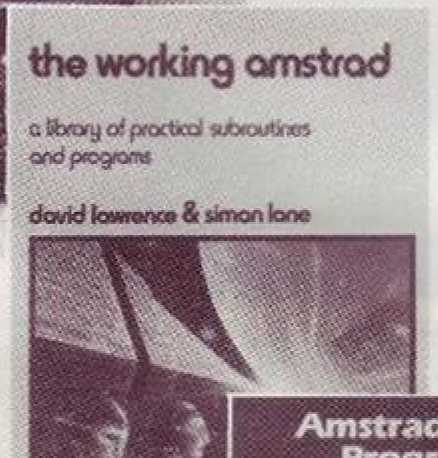
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Heroes of Karn
Shogun
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Price of Magik
Dan Dare

CHEAT MODE: The Amstrad Action Collection 85-86

This is the publication you've been clamouring for. It gives you under a single cover all the Cheat Mode pages and most of the game-maps printed in the first 16 issues of Amstrad Action. Literally hundreds of Pokes, Tips, mini-articles and maps are included. And to help you find your way around there's a specially-compiled index allowing you to turn instantly to the game you need help on.

The book, which is printed on high-quality paper with a glossy, colour cover, begins with a special introduction by Bob Wade. It looks good, and we think you'll love it. If you can't master a game after wading through this little lot, you're beyond hope...









MASTERING MACHINE CODE ON YOUR AMSTRAD

Ready to make the plunge? This book is for people who want to go straight to the heart of their Amstrad and unleash the speed and power of machine code programming. Authors Jeff Naylor and Diane Rogers have aimed it at the beginner, while at the same time offering various programs and routines of interest to more advanced machine code programmers. These show how to write a database program, how boost the graphics, how to produce graphs.

There are also chapters on sorting and on how to use RSX commands.

To get the most out of the book you may need to buy an Assembler program to allow you to input machine code programs more easily, although the book can stand alone as a good introduction to the subject. 146 pages plus index.

THE WORKING AMSTRAD

This book is basically a cleverly-presented library of type-in programs for people who want to put their computer to good use.

Programs included are Graph, Pie-Chart, four separate clock and timer utilities, 3D bar chart, customised character set, high resolution designs, music, unifile – a personal powerful filing system, Name and number dictionary, Text-ed, MultiQ, Banker, and Accountant.

The working of each program is explained in detail, so you should be able to tailor them to your own requirements. And what makes the book particularly good is that each program is divided into separately explained modules – you automatically learn structured programming as you go along.

216 pages of high-quality material.

BACK ISSUES

£1.35 or £1.85 each including P&P

If you're a more recent convert to Amstrad Action, why not catch up on some of the great issues you missed. The back issues still in stock at time of going to press are listed on the order form.

The three higher price issues include a cover mounted cassette packed with good software. Issue 4 included two Ocean games, Issue 8 featured The Covenant from PSS and issue 16 had level two of Firebird's Druid plus a host of other smaller programs.

AMSTRAD ADVANCED PROGRAMMING TECHNIQUES

If you think it's time you got a bit deeper into programming your CPC you should get hold of this book by experienced computer author David Lawrence. Using dozens of working programs and utilities, he shows how to develope serious applications on the 464, 664 and 6128.

Chapter and section headings include: Modular programming, Debugging, Interpreting error messages, Strings, Garbage collection, Inputting information, INKEY$ and timed response, Error trapping, Storing and Retrieving, Making use of EOF, The principles of Sorting, The bubble sort, The delayed replacement sort, The Shell-Metzner sort, Data structures, Storing directly in free memory, Pointer strings, The Black Hole problem, Binary searching, Pure searching.

152 pages with index.

MAKING MUSIC ON THE AMSTRAD

Ian Waugh's 181 page book is aimed at allowing you to take full advantage of the Amstrad's sophisticated sound facility. Chapter and section headings include: What is Music?, The Sound Command, Programming Scales and Ptiches, ENV and ENT – the Volume and Tone Envelopes, Zaps and Zings and other things, Playing the Amstrad, Making Micro Music, Producing echoes, Delay effects, White noise, Simple sound effects, Designing a rhythm unit, Soundscapes, The Amstrad synthesizer, Altering the bass riff, Saving the tune, Using chords, Improving the melody, Sing-along-a-matic.

There are numerous program listings and examples to show you the way. Great value for any CPC owner with an interest in Sound.

HOW TO GET THESE BOOKS

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Much of this magazine is dedicated to telling you in detail about the fantastic range of software available on the Amstrad CPC computers. But we can do more than inform you about it. We can deliver it direct to your home. All it takes is a few moments of decision making on your part, a visit to the post box or a quick phone call, and your choice of software arrives, like magic, on your doormat.

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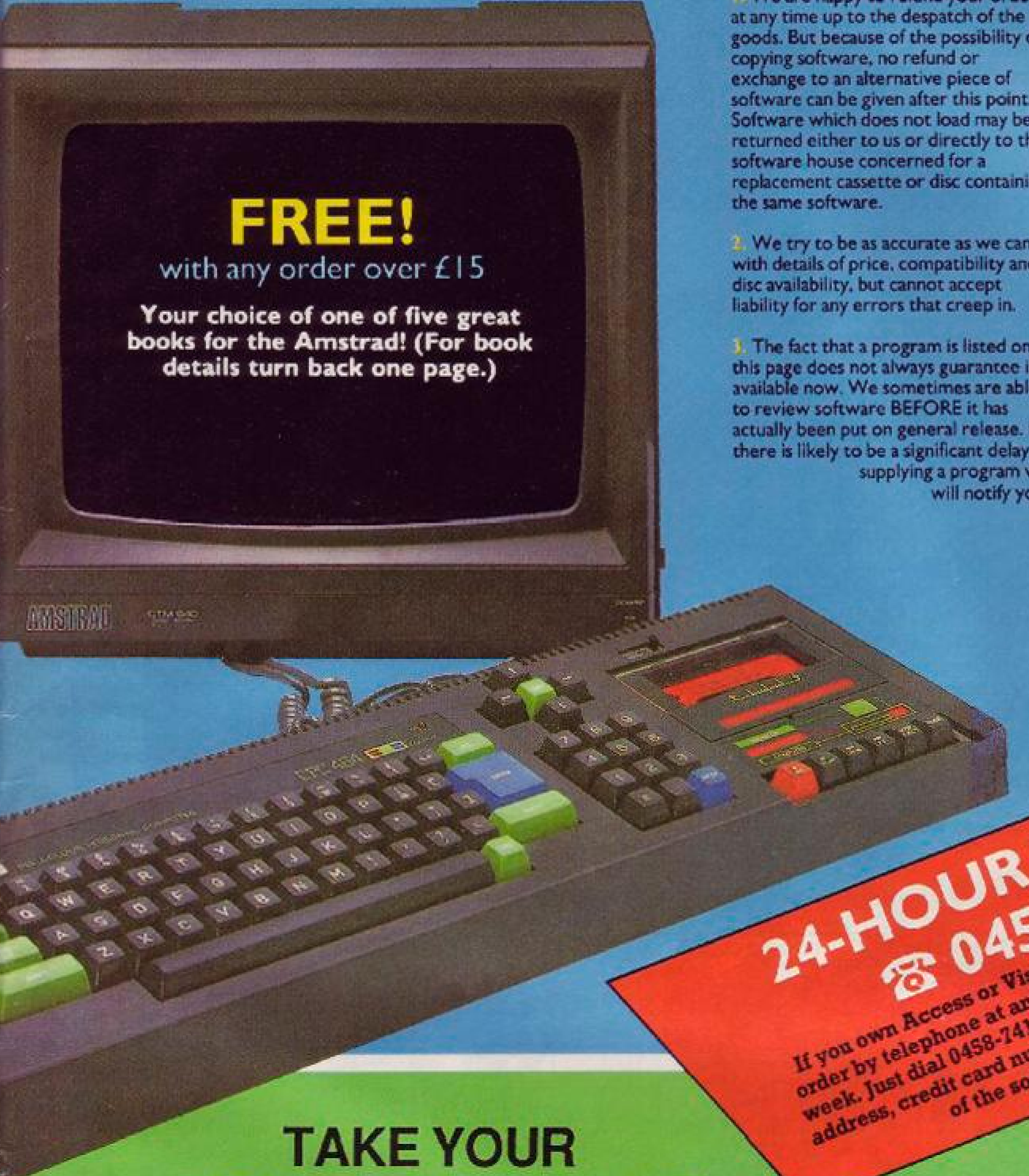
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1. We are happy to refund your order at any time up to the despatch of the goods. But because of the possibility of copying software, no refund or exchange to an alternative piece of software can be given after this point. Software which does not load may be returned either to us or directly to the software house concerned for a replacement cassette or disc containing the same software.

2. We try to be as accurate as we can with details of price, compatibility and disc availability, but cannot accept liability for any errors that creep in.

3. The fact that a program is listed on this page does not always guarantee it is available now. We sometimes are able to review software BEFORE it has actually been put on general release. If there is likely to be a significant delay in supplying a program we will notify you.

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Maestro unit	39.99	36.95	(hardware)	
PenDown demo	-	-	-	3.95
The Music System	15.95	12.95	19.95	15.95
Adv. Music System	-	-	29.95	24.95
The Art Studio (6128 only)	-	-	19.95	16.95
Electronic Music Utility	14.95	12.95	19.95	16.95
Graph. Adventure Creator	22.95	19.95	27.95	23.95
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Protext on ROM	39.95	32.95		
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Maxam on ROM	39.95	32.95		
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Masterfile (464,664)	24.95	21.95	29.95	25.95
Masterfile 6128	-	-	39.95	34.95

AA Binders....Only £3.95!!

REAR VIEW

A new page looking at the lighter side of computing and starring an old favourite – Sugarman.

AS READ BY THE SPECIAL BRANCH

It's funny where Future Publishing's creations pop up these days. *PC Plus* was spotted on the desk of Duncan Campbell on Newsnight – is the nation's security at stake?

AA gets around as well. A Loughborough university lecturer wanted to use our article on word-processors to show his top-year students how it should be done. And the producers of a textbook called *Development of Printing* used one of our recent covers in a collage illustrating the diversity of 20th-century printed material. There are even rumours that the Tate gallery is planning an exhibition of *AA* covers.

PRIZE IDIOTS

We refer to ourselves because of previous problems with the sending out of prizes (all cleared up now, of course). One of our more longsuffering victims was PG Worrall of Ayr, who wrote to tell us this:

"I am throwing down the gauntlet, issuing a challenge even, and announcing a record for not receiving a prize promised by *Amstrad Action*. See Reaction in issue *five* and my letter entitled 'Gruntled'. Nine months have passed and still no sign of any voucher (what happens down there? do you have to give birth to them?) despite both written and telephoned reminders. Beat that if you can, folks!"

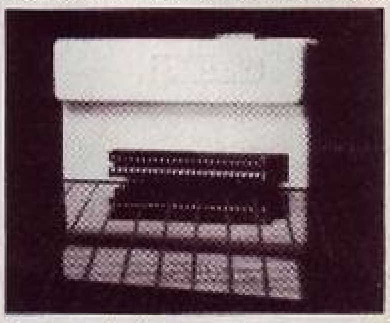
Well, PG, your letter – dated 7 November 1986 – reached the Reaction 19 desk by an unusual and long route, and finally ended up here. There is no note on it to confirm that the long-overdue voucher was dispatched. So we think we've certainly won your challenge to "beat that if you can folks!" Your £15 voucher is in the post at last.

Your point about slow-gestating vouchers is so well put that it wins the newly created ExtraPrize for Extraordinary Expression. Appropriately you will have to wait several months for this award: six months tacked on the end of your subscription.

Stop Press: Mr Worrall has phoned us to say that his subscription arrived ... Great!... and that he now gets two copies every month ... Drat! Next instalment in this saga when our computerized subscription system coughs up another mistake for Mr Worrall in six months. We think it's conducting a one-person vendetta against him and have locked Toot up till he admits responsibility.

NO PCW JOY

After the curious Thingi publicity shot last month we've got another crossover with the PCW machines. Patrick Kearney of Strathclyde has spotted an odd story in the January issue of *Computer and Video Games*, a multi-machine publication. It reports on an interface to let Amstrad CPCs use an auto-fire joystick, and also warns that auto-fire sticks might damage



the sound chip.

This naturally worried Patrick who has an auto-fire stick. He needn't worry unless his stick has an additional power supply; that's the only thing that could affect the sound chip – if you know different let us know.

The punchline is that the interface wasn't for the CPCs at all but for a PCW. Have you heard the sound on a PCW? Beep, beep, beep.



ADVERTISER'S INDEX



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